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ABSTRACT

This document analyzes the institutional arrangements governing the size, nature, and directions of the educational research and development (R&D) efforts in Organization for Economic Cooperation and Development (OECD) countries. The main themes of the present survey are the explicit or implicit goals of educational R&D, its relation to pedagogical practice, and the part it plays in policy and decision-making. A brief summary of the history of educational R&D, identifies two stages: the first relates to a period and situation where R&D did not aspire to intervene directly in education and the second is characterized by a move towards direct and purposeful intervention. These stages are both very much in evidence in the various OECD countries. The chapters following the introduction examine the different types of R&D centers, experimental and development agencies, and dissemination efforts; analyze the available data on finance and human resources devoted to R&D; indicate the substantive nature of R&D efforts; examine the trends in policy-making and planning; and deal with current strategies for R&D that are a function of the value and authority structure of individual educational and social systems. (Author/JH)

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RESEARCH & DEVELOPMENT IN EDUCATION

A SURVEY

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT
PARIS 1974

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RESEARCH & DEVELOPMENT IN EDUCATION

A SURVEY

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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FOREWORD

The present Survey attempts to assess the current position of educational R & D and its relation to educational policy. More specifically, it seeks to determine present trends in the organisation of R & D and to identify the institutional and decision-making mechanisms which govern the research process. The scientific content of R & D programmes as such has not been considered except insofar as it relates to the general context of educational policy.

Considerable difficulties were encountered in the preparation of the present Survey, notably because the institutional status of educational R & D in most countries still remains uncertain. Furthermore, the information and statistics available regarding resources, personnel and research projects were often insufficient or based on unreliable or unknown criteria.

The status of the research worker is determined in each country according to national regulations which are difficult to standardise. The same problem is experienced in other aspects of the R & D process. For example, in training programmes, occupational structures, financing and planning methods, or even in defining research fields, differences are so great as to render international comparisons misleading. Thus, the tables presented in the text are of value only insofar as they offer some comparative indication of magnitude.

Except for occasional references to non-European Member countries, the review is limited to the European area of OECD. As such, it would be instructive to compare it with the comprehensive analysis of educational R & D in the United States published in 1971 by OECD (Reviews of National Policies for Education : the United States). The extent to which the present publication is a less ambitious attempt reflects, for the most part, the differences in role, volume and purpose of R & D between the two shores of the Atlantic.

This Survey, published under the responsibility of the Secretariat, was prepared within the programme of the Education Committee. Earlier drafts of the report were scrutinized by the Education Committee of the Organisation and by the national authorities in the Member countries. All information for which sources are not given has been submitted or verified by the national authorities concerned.

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SUMMARY

The present document is concerned with an analysis of the institutional arrangements governing the size, nature and directions of the educational R & D effort in OECD countries, particularly European. It attempts to describe and, to the extent possible, evaluate the present organisation of R & D and its current problems rather than study the internal development of the scientific disciplines which contribute to education. Thus, the main themes of the present survey are the explicit or implicit goals of educational R & D, its relation to pedagogical practice, and the part it plays in policy and decision-making. The scientific aspects of the R & D enterprise are considered only in terms of their institutional implications and in their relation to the education system.

After a brief survey of the history of educational R & D in Europe, the following topics are successively dealt with in the report :

a) The institutional framework of educational R & D ;
b) Resources in financing and personnel ;
c) Substantive areas of research ;
d) Policy-making and planning for educational R & D ;
e) Current strategies for educational R & D.

In its relation to educational practice and public needs, two stages can be identified in the historical development of R & D, described in the Introduction. Stage I relates to a period and situations where R & D did not aspire to intervene directly in education but rather to influence, in a more indirect and diffuse way, the attitudes and behaviour of the participants in the educational process. Since the last war however, and especially during the last decade, we have been witnessing a transition to a new stage, characterised by a move towards a more direct and purposeful intervention ; free research is accompanied, and sometimes tends to be superseded, by inspired and commissioned research ; decision-oriented research and development appear today as important as conclusion-oriented investigations.

In the short run such a development may be accompanied by a certain amount of tension between the goals of academic and of developmental research (and, to some extent, between politics and research). But it has been recognised that, to be effective, applied and developmental research have to depend heavily on free academic research. Thus, the framework which is now being sought in OECD Member countries consists in the reabsorption of Stage I into Stage II. However, this has not yet been achieved and in most countries the two stages continue to have their separate implications in institutional terms, in personnel and in finance ; the characteristics of both stages appear presently to co-exist rather than to be integrated. The pattern today is one of the transition from unplanned arrangements, which nevertheless had an implicit coherence, to planned set-ups, in most cases still searching for a new unity. While traces of both stages

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exist in every country, it is easy to discern which of the two patterns predominate in each country.

Chapter I examines different types of R & D centres, experimental and development agencies, and the present dissemination effort. It appears from the analysis that whereas the functions of knowledge production and development are well established - in institutions of higher learning, in research centres and in developmental agencies - functions directed at supporting research enjoy a less-established status. This applies to dissemination, to the co-ordination of theoretical and applied research and its implementation in practice. All countries are witnessing the development of a major trend, either as the result of deliberate policy or as the outcome of spon[illegible]eous social pressure, whereby R & D and its dissemination are seen as part of an on-going innovative proc[illegible]s in which the clientèle of R & D is called upon to participate. Thus, the importance of developing effective mechanisms for feed-back, especially from the local level, is significantly increasing.

Chapter II is devoted to an analysis of available data on finance and human resources. One striking feature is the low level of both financing and per[illegible]nnel, with the exception of Sweden and the United States which appear far ahead of other countries. The proportion of the education budget employed in R & D never exceeds 0.5 per cent and very often represents less - sometimes much less - than 0.1 per cent. A correlation appears to exist between sums invested, the size and number of research centres and the historical development of R & D individual countries. In those countries where arrangements typical of the former stage still predominate, investments are lower and research centres, in a great number, tend to be small - and vice-versa. However, forecasts indicate that in the coming years a decisive take-off may occur. Investments are expected to rise two, three and four times in some countries and in the more advanced countries public expenditures on educational R & D are also expected to increase steadily. It appears that a similar expansion is taking place in relation to personnel, so that it may be reasonably expected, at least on the basis of current country expectations, that by the mid-'seventies a substantial amelioration of the present situation will have occurred.

In Chapter III, indicative tables of the substantive nature of the present R & D effort are provided and tentatively analysed. As expected, research subjects vary considerably according to the dominant R & D pattern. In the countries where R & D tends to be predominantly seen as a service activity the number of projects dealing with concrete educational topics and specific issues of policy concern in education is far higher than in those still at the beginning of this stage.

Policy-making and planning for educational R & D are the subject of Chapter IV. Increasing concern for co-ordination and planning is perhaps the most noticeable feature of the last two decades, first in the northern and at present in the southern European countries as well. Laissez-faire policy is giving way to different forms of integration, varying from marked and relative centralisation to other types of co-ordination. R & D planning faces the difficulties involved in obtaining a flexible but structured organisation, able to reconcile policy management and differentiation according to the needs of different research fields and of specific clientele.

Characteristic of the present transition period is the multitude of bodies, inventoried in this Chapter, contributing to the definition of research policies. This is seldom the outcome of deliberate policy favouring the overlapping of responsibilities (as is the case in Norway) but consists rather in the juxtaposition of different agencies created at different times with different purposes. The mutual connections and functional relationships between policy bodies appear to be a major problem ; another is their composition, i.e., the

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part available to researchers, educationalists, local education authorities, students and the community at large.

Chapter V deals with current strategies for educational R & D. It appears that the older approach to R & D has lapsed, or is lapsing, in most OECD countries. However, to make present efforts consistent, a number of requirements have to be met ; these refer to the new conditions in which basic research has to evolve in order to respond to public needs, and to the special circumstances of the present period, making of applied and developmental research a leading concern. It is suggested that, in the present stage, the contribution of R & D can be effected either as an element of a functionally national bureaucracy closely linked to central authority or as a critical informative enterprise. In the latter case, its function would be the continuous assessment and re-assessment of collective needs and aspirations, critical analysis of formulated education goals and policies and to participate in the formulation of new goals according to those needs and the public interest. A number of conditions are necessary if such a function is to be realised : they relate to the institutional framework for R & D, the status of the researcher, the relationship between research and development and participation in change. The options being increasingly recognised as political, they will inevitably reflect the value and authority structure which characterises individual educational and broader social systems.

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INTRODUCTION

A. THE HISTORICAL FRAMEWORK

After a long period of neglect by the general public as well as policy-makers, research and development is now becoming a widely accepted tool for bringing about educational innovation and change. This brings with it a growing awareness that, irrespective of its particular features in each country, the efficiency of research in terms of its role in educational change depends on deliberate policy and organisation. Indeed, the current debate is centred on the need and the search for an adequate institutional basis.

The present situation reflects in large part the experiences of the past which might be divided into three epochs, namely, the second half of the nineteenth century until the first world war, the inter-war period, and the post-war years.

a) The late nineteenth century was marked by the emergence of education as a separate discipline, independent of philosophy and theology. During this period the first attempts were made to study education by empirical, scientifically-oriented methods.
Guidance and inspiration had heretofore been sought mainly from psychology, the only relevant disicipline to have gained, at that time, a credible scientific status. The creation of institutes of educational studies at the universities, generally attached to departments of psychology, reflected this. In Sweden, where university teaching and educational examinations were begun as early as 1804, a special university degree was created in 1907 at Lund and, in 1909, a Professorship of Education and Psychology, as well as an institute of education, was established at Uppsala. In Germany, university teaching of education started in 1845, at Jena. In Austria, the institute of education of the University of Vienna dates back to 1872. Chairs of education were established in 1876 in Scotland (Edinburgh and St. Andrews). Most of the institutes of education of English universities were established in the 1880s and 1890s (some of them were previously colleges for teachers). The Ecole de psychologie et des sciences de l'éducation was created in Geneva in 1912. An international Faculté de pédologie functioned at Brussels during 1911-14. (1)
The second factor contributing to this development was the lasting and significant imprint made by the famous educationalists of the epoch (from Pestalozzi in the early nineteenth century to Fröbel, Decroly, Montessori, etc.). Through direct observation and contact with teaching situations, they were able to stress the need to adapt curricula and instructional methods to children's motivations, to take into account learning environments and the emotional development of pupils.

1) The movement speeds up after the first world war (e.g. Belgium : a licence in pedagogical sciences was created in Brussels in 1919 and then chairs of education at Louvain, 1923 ; Gand, 1927, Liège, 1940 ; Italy : Rome, 1923 ; Norway : Trondheim, 1922, Oslo, 1936), and becomes generalised after the second world war, thanks to the establishment of departments or institutes of education in a great number of European universities.

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Current themes of today such as creativity or individualised instruction have their origin in the pioneer work of these people. (1)

b) Consolidation of the educational disciplines is the main achievement of the inter-war period. Organised efforts were made to translate new psychological theories into educational terms (Piaget's work starts in the early twenties) and, particularly, to develop theories of learning based mainly on Gestalt and behavioural psychology (2). The first studies on the sociological and economic aspects of education also date from this period. Educational research, carried out primarily in universities, was essentially of fundamental character. This meant that the methods used were those of the social sciences, education being just another field where they were applied. Scientific enquiry, in broad terms, aims at the pursuit of knowledge (scientific conclusions) rather than the provision of a basis for policy decisions. In most European countries this approach is still dominant today, and everywhere it remains a basic component of the R & D process. Apart from testing, which represented the most visible intervention of research in the school system, and led to the establishment of specialised institutes, applied research, development and dissemination were not main concerns of the epoch. The little work done in the field was carried out in teacher training schools and general R & D centres, usually by former teachers without appropriate scientific training ; the influence of their work remained negligible.
Nevertheless, there were exceptions. For instance, pilot-schools were set up in different countries during the 'twenties and 'thirties - they played an important role in the Vienna school reform after 1918 - as well as some dissemination mechanisms.

c) The post-war period is characterised by great development of educational science, evidenced by the multiplication of research topics and refinement of research techniques, as well as by the increase and differentiation of R & D centres. The period is also marked by the progressive institutionalisation of R & D. The last five or six years, in particular, have seen the development of structural linkages between research, educational planning and educational practice. Organisational problems of R & D - co-ordination of research activities, planning and financing, the status and professionalisation of the researcher and the functioning of R & D institutions - have entered into the forefront of concern.

As it is generally conceded today that R & D is relevant to educational policy, it follows that policy for educational research and development must itself be defined.

B. CURRENT PATTERNS

As has been indicated, until the years following the second world war, research in the European countries followed the lines set by the long established university tradition of academic freedom. The main

1) This may explain their success and popularity, perhaps never paralleled by any properly scientific school or "formal" educational reform.

2) The development of educational research in the United States followed the same path, but began much earlier : (i) The active campaigning of H. Bernard in the American Journal of Education (founded in 1855) in favour of collecting empirical evidence on education became a policy of the USOE when W. T. Harris took up the Commissionership in 1889 ; (ii) behavioural psychology was firmly established in the United States at the turn of the century thanks to W. James, St. Hall, Thorndike, etc. ; (iii) the foundation in 1896 of J. Dewey's Laboratory School at the University of Chicago marks the beginning of a permanent concern with innovation in education. See L. J. Cronbach and P. Suppes, eds., Research for Tomorrow's Schools, 1969, Chapter II.

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objective was the pursuit of knowledge of which others might or might not make use. Interest in and desire for application of the knowledge were not absent but the main aim was to improve understanding not to indicate policies.

This role was and still is of great importance even though its impact may not be apparent or direct. New knowledge and deeper understanding are still needed and do still indirectly promote change. As William Taylor has lucidly expressed it :

> "Only exceptionally will the daily discussion of a problem or difficulty include the citation of a particular piece of research that contributed significantly to resolution or decision. Yet even when there is no explicit reference to particular studies, it is unlikely that such discussions will be unaffected by research. It exerts its influence by helping to determine the agenda of problems and difficulties, and in providing some of the elements that shape individual and group orientations towards particular issues. Just as anyone who talks and writes about man and society today is likely to have been influenced by - even if they never refer to, have never read or have never ever heard of - the work of Darwin, Marx or Freud, so discussions about education are likely to be influenced by research on such topics as social class and educational opportunity as have been reported during the past twenty-five years. This, and earlier research, arose from the problems of its time, and produced findings which have helped to suggest and define new problems and issues. Research on mental functioning has had the effect of removing certain concepts from our vocabulary, such as faculties, and of downgrading the importance of others, such as 'attention' and 'memory'. Equally, it has pointed up the existence of problems which now feature as important items in the agenda of our concerns, such as the effects of early maternal deprivation, or of impoverished linguistic environments, or the task of delimiting the stages of mental growth."(1)

In all countries the academic research tradition remains and in some still dominates : in Germany, France and the Mediterranean countries the assumption still is that of academic integrity, untarnished by the compromises and equivocations of practical politics ; contentment with the role of adding to knowledge, understanding and wisdom ; concern therefore with the basic behavioural influence and not with the short-term fluctuations of policy.

But in a number of countries, following perhaps the example of the USA, the influence was felt of the intense application of science in technological development conceived in market terms and it became clear that the model of Research and Development as evolved in the physical and biological sciences with such apparent success could also be used to carry the educational sciences forward as direct contributions to the solution of the acute educational problems of the post-war world. It was possible and desirable in education also to define the needs of the "clients" and to create "delivery systems" for products to meet those needs. It was accepted in this as in other scientific fields that the role of the scientist should be extended to build on the ever-increasing knowledge base to elaborate and to deliver "packages" of scientific findings appropriate to particular issues of current concern.

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1) W. Taylor, Prospects and Problems in Educational Research Co-operation in Europe, address to the London Colloquium of Directors of Research Institutes, 1971 (Council of Europe, Documentation Centre for Education in Europe, Information Bulletin , 1/1972, pp. 20-21).

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It should be emphasized that the traditional role of the academic researcher and the new role of the applied scientist are in no sense incompatible. The second is the development of the first and depends upon its continued health and validity ; they can be conceived as two stages in the evolution of educational R & D though they are not sharply delimited, the second emerging from the first. The predominant characteristics of the two stages can be identified however : indirect as against direct action on educational policy and practice ; free research as against inspired, commissioned and even contract research ; conclusion-orientated research as against decision-orientated research. In more concrete terms the two stages have their separate implications in institutional forms, in personnel and in finance.

The extent and the rate of the progression from Stage I to Stage II varies from country to country for much depends upon national traditions, specific needs and political and social objectives. At the risk of considerable simplification and in the consciousness that nowhere is the situation static, one can say that among the European countries, France, Germany and the Mediterranean countries are on the whole still in Stage I while Scandinavia, the Netherlands and the United Kingdom have unmistakably moved into Stage II, though not at the same rate, to the same degree, in the same way or with the same ease.

The last two decades have witnessed social and economic changes of a depth and magnitude unprecedented in modern European history ; and education, both as mirror and as moulder of society, has not escaped radical change. Reform has been seen in educational structures, in curricula, and teaching methods, in selection criteria and guidance. At the same time as economic and social opportunities have broadened, the public as a whole has shown an unprecedented concern with educational problems while a new understanding has emerged of the role of students and teachers as agents of innovation and change.

Educational policy-makers are faced with problems of great complexity and they need the assistance of research as never before. They need on the one hand the deeper understanding of personal development and motivation which the study of the behavioural sciences can give, and on the other, assistance with practical problems of organisation, curriculum improvement, and methods of assessment. What are the implications of these needs for educational R & D ; how far can research be financed, staffed, organised to support and stimulate the innovations which are essential if these needs are to be met ?

One thing seems clear - that the indirect assistance of the Stage I arrangements is no longer adequate, that it is not sufficient for the researcher to sit in his university tower and build up theoretical knowledge, however valid. Modern R & D is active, supportive, participative with a wide range of functions, providing technical and evaluative support for reform initiatives, providing training and trained people in research skills, informing and suggesting possible lines of policy in pursuit of educational progress.

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Chapter I

THE INSTITUTIONAL SET-UP

A. R & D INSTITUTES

The same basic types of research institutions are found in all OECD European Member countries ; universities, colleges of education and autonomous centres of university-type, comprehensive and specialised R & D centres, and developmental agencies (1).

This classification takes into account the nature of research activities as well as the goals implicit in the exercise of research (2). University and university-type R & D centres are traditionally "academically oriented", while the others appear more "policy oriented" ; the functioning of both, however, still depends on the ethos which finally prevails. University research, for example, differs noticeably between countries where it remains exclusively attached to the tradition of disinterested investigation, such as France or Germany, and those where research tends in general to be envisaged as a service activity with policy implications, such as Sweden or Finland.

European R & D in education is primarily controlled by establishments of public origin. But there is a private sector which should not be overlooked and about which a few remarks should be made.

i) The policy of private sponsors is generally to finance existing centres or specific projects rather than to create private agencies. This is notably the case for the most important foundations, such as Nuffield, Gulbenkian, Wolfson and Platt, etc. in the United Kingdom, or Volkswagen in Germany. The same occurs in the United States (Ford, Carnegie, C. F. Kettering, etc.).

ii) Those foundations which run projects of their own have an increasing tendency to associate them with public agencies, as happened with the curriculum projet of Nuffield, and to transform private centres into service agencies (as IDEA of the Kettering Foundation in the United States) (3).

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1) Centres within the administration which perform research functions are not considered here. They are concerned more with planning than research, and the research is of the "implementation" type - after the political decisions have been made. These centres exist today in practically all Ministries of Education of OECD Member countries.

2) Distinctions based on juridical-administrative grounds (e. g. "centralised" as opposed to "decentralised" structures) do not seem very significant.

3) See Reviews of National Policies for Education : United States, OECD, Paris, 1971, pp. 218 et. seq.

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iii) Private research centres are therefore generally small, and educational research represents only a modest portion of their total research (1). The Italian situation is typical : of the 16 private R & D centres recorded by G. Gozzer, none is devoted solely to research in education(2).

iv) In those countries where religion is acknowledged by the state (as in Belgium and the Netherlands), denominational and para-denominational research centres sometimes receive grants from public authorities for specific projects. In other countries denominational research is financed by the Churches. For instance, in Germany the Comenius-Institut is sponsored mainly by th German Protestant Churches, and the German Institute for Scientific Pedagogy sponsored by the Catholic Church. National hierarchy authoriries finance a number of projects in Catholic universities and institutes in Belgium, Switzerland, France and Austria. In Italy the Pontificio Atenao Salesiano of Rome develops an important activity in the field of educational research.

v) There are no indications as to any emerging development of private research. However, it is worth mentioning that one of the leading Portuguese centres, the Pedagogical Research Centre of Gulbenkian foundation, is a private institution.

a) The University

Universities are the oldest research institutions and, in many countries, still remain the most productive, thanks mainly to doctoral dissertations. Theses in progress represented one half of all French research projects in 1968.

Characteristic of countries where traditional educational research departments predominate is that they work independently of public authorities and consequently have no direct impact on school practice ; the number of highly-qualified researchers is low ; budgets are small and equipment is insufficient. As a result, the scientific effort is often reduced to documentation research, especially historical, philosophical and comparative : e. g. almost half of the projects recorded in German universities and colleges of education during 1967 were of this nature (3). Only a small amount of research in such departments is original.

Research relevant to education is also undertaken by other departments such as psychology, sociology, economics, linguistics or biology.

Although education appears to be an interdisciplinary field of study par excellence, the current practice in universities of conducting research in discrete areas, means that interdisciplinary work is still the exception. Inter-departmental contacts, not to speak of collaboration among universities, remain infrequent and are seldom institutionalised.

Also, few education departments are structured along inter-disciplinary lines. Research activities reflect predominantly the interests of the professors, and since most of them throughout Europe have received their basic training in psychology, research conducted in education departments remains still generally oriented towards psychology. This is particularly true in the countries where the academic type of research still prevails.

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1) Some private centres are attached to publishing houses (e. g. the Läromedlsförlajen in Sweden, the Österreichischer Bundesverlag and Überreuter Verlag in Austria, Hachette in France) or to other producers of educational materials (e. g. Pye in the United Kingdom and Philips in the Netherlands).

2) Cf. G. Gozzer, La ricerca educativa in Italia nelle sedi extra-universitarie, mimeo, 1969, appendix 1. One exception is the Milano IARD Association which for the last ten years undertakes research and experimentation in schools at different levels. Their results are to be found in a large number of publications (namely in Il Mulino, Bologne).

3) See below, Table XI.

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With the transition to Stage II, however, new features begin to emerge, in connection with the concern for a more direct participation of R & D in the solution of educational problems. As it will be seen later on, this trend is especially noticeable in the Scandinavian countries but is apparent also elsewhere. Here, many university projects have as much an "applied" as a "fundamental" nature ; purely documentary work is almost non-existent, and research as a whole tends to be more closely related to concrete educational issues.

Like the university-based R & D centres in the United States, universities are sometimes associated with development plans ; such is the case in Sweden, where universities and colleges of education together represent almost all R & D institutions and, in Finland, where the Finnish Institute for Educational Research is located at Jyväskylä University. One important Portuguese research centre, the Social Research Centre is attached to the University of Lisbon. In a near future Research Institutes and Interuniversity institutes will also be set up in Portugal.

Some English universities, too, work in close connection with local education authorities via the Schools Council for Curricula and Examinations, created in 1965. The Schools Council commissions projects which are often carried out in universities, on the basis of an appreciation of national needs. Such linkages also exist at local or regional levels in Switzerland, France, Belgium or Yugoslavia, though their impact is as yet peripheral.

There is even a trend towards the direct or indirect co-ordination of university research. A special bureau of the Office of the Chancellor of the Universities, in Sweden, functioning since 1969, plans in fact the ordinary research programmes in higher education through the approval of projects ; also a corresponding bureau of the National Board of Education finances and approves research projects on schools. In Finland, it is the Ministry of Education that co-ordinates university research through its Office of Research and Development (the same Ministry controls the activities on higher education of the Institute mentioned above). In the Netherlands, representatives of the entire research community sit on the governing board of the Dutch Foundation for Educational Research (SVO). And the co-ordination of university research is part of the mandate of the Swiss centre for the co-ordination of educational research, set up at Aarau since the end of 1971.

Finally, Stage II brings a noticeable move towards interdisciplinary activity. For example, the research personnel of education departments in the U.K. includes representatives of many disciplines : linguists, psychologists and sociologists in Manchester ; statisticians, psychologists and sociologists in Bristol ; psychiatrists, psychologists and statisticians at Birmingham ; etc. In the Netherlands, the staff of the University Institute for Research into Higher Education includes psychologists, sociologists, teachers and economists. The distribution of academic research workers in educational research in 1966 was : 63 teachers, 119 psychologists, 28 sociologists and 53 others (1).

The staff of educational institutes, departments and laboratories is generally composed of professors and lecturers or equivalent categories, advanced students and, very occasionally, associate researchers from outside the university. One institutional feature of university research common to all Europe is the progressive decline in prestige of the chair (which rested on the assumption that a single person could grasp the knowledge available for one generation, and that knowledge changed slowly). The gradual implementation of new frameworks (especially "departments", tending to be interdisciplinary) has come about in response to accelerated change in the conditions of production of knowledge. In the European countries, other than the United Kingdom, there is in the "hard sciences" a broad distinction between chairs and institutes. The chair

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1) De situatie van de onderwijsresearch in Nederland, 1966, SVO, The Hague, 1968.

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transmits existing knowledge through teaching ; the institute creates new knowledge through research (1). In the education field, distinctions between these different organisations are terminological rather than reflecting differences in content. This is apparently due to the scarcity of material and personnel resources, the still uncertain scientific status of the discipline and the general tendency to combine in one single person the chair and the direction of institutes, laboratories or departments. In Sweden, for instance, one finds departments of education in the universities as well as in some teacher training schools. Both combine teaching and research and do not present distinct differences.

b) Teacher Training Schools

The organisation and nature of research undertaken in teacher training schools differ considerably in OECD European Member countries, reflecting historical traditions and the place given to these schools within the educational system. A distinction must be made between the research carried out in teacher training schools having a relatively low academic prestige and those whose status is identical with or near to that of the universities or which operate in close contact with them.

In the first, characteristic of Mediterranean countries, Switzerland, Austria, Italy, Belgium or France, research represents only a very small part of the school's activities. As a rule, it is left to the initiative of individuals and seldom benefits from funds on a regular basis. This approach to research, on the whole, appears as an impoverished version of the university approach, but it has a considerable practical significance in the dissemination and vulgarisation of the latter one and of its findings.

In the countries where teacher colleges of high academic level with research activities are found - such as Germany, Sweden or the U.K. - they are frequently acknowledged as R & D institutions by public authorities (in Sweden central authorities allocate agreed sums for educational research to schools of education); research is often carried out in special departments and is turning increasingly to current education issues. In Portugal Higher Teacher Training Colleges are being implemented. These Colleges, as well as the university institutes mentioned above, will develop R & D activities.

It is interesting in this connection to compare the distribution of research subjects in German Universities and "Pädagogische Hochschulen" in 1967 : (2)

Research Topics	Universities	P. H.
Historical-Philosophical	36	5
Curricula	15	17
Teachers	8	4
Teaching methods	7	11
Adult and further education	3	0
Comparative education	16	4
Basic pedagogical research	6	6
Basic sociological research	8	6
Basic psychological research	11	11
Testing, evaluation, educational efficiency	3	14
Total	113	78

1) Cf. J. Ben-David, Fundamental Research and the Universities, OECD, Paris, 1968. It may be noted that the United Kingdom "institutes" of education were created after the second world war.

2) Dokumentation Forschungsarbeiten Pädagogik, Pädagogisches Zentrum, Berlin, 1967. On the basis of the DFP for 1968, the Bericht zur pädagogischen Forschung [Europarat Dokument DECS/Rech (68) 13] arrives at the same conclusions (cf. pp. 152-153).

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One of the most important French research centres for educational technology (the Centre audiovisuel de St. Cloud) is located in an Ecole normale supérieure, training high school teachers. This centre has at its charge the direction of an important set of experiences carried out in about twenty primary and secondary schools in the whole of France.

The new teacher training schools in Sweden which were created during the 1950s and 1960s deserve special mention. Each school has what is termed an experimental and demonstration school intended to develop in trainee teachers a speculative and analytical attitude to educational problems. (It should be noted that these are not pilot schools : "These experimental and demonstration schools differ from previous practice schools in that they do not form an independent school but consist of a collection of regular school classes within the municipal schools in the locality where the school of education is situated.") (1). Among the 15 teacher training schools of this new type, called schools of education, six have educational research departments actively participating in development activities. As already mentioned, these schools of education (in Göteborg, Linköping, Malmö, Stockholm, Umeå and Uppsala) constitute a key element of the Swedish research machinery. The range and the nature of their research activities bring them near to the comprehensive R & D centres described below.

c) Autonomous Centres of University Type

These centres are of relatively recent origin. Though comparatively few in number, their impact is considerable in as much as they represent an elaborate attempt to compensate for the universities' delay in responding to current educational needs and in accommodating new disciplines in educational research (2).

Research conducted in these autonomous centres has a "theoretical" rather than a practical orientation. In contrast to much university research, however, the areas of study appear directly relevant to policy-making. Especially in Germany and France, these centres have been responsible for the breakthrough of sociology and economics in educational research, as well as the detailed analysis of educational structures and their interaction with society. Indeed, one of the most significant features of the last two decades is that education is now being considered an integral part of socio-economic policy and no longer a chasse gardée of educators and psychologists.

Germany provides two important examples of such autonomous centres, the Max-Planck-Institute for Educational Research, IBF (at Berlin, founded in 1963), and the German Institute for International Educational Research, DIPF (at Frankfurt, founded in 1951) (3). The IBF was created because of "the out-dated-ness of educational institutions in the Federal Republic of Germany and West Berlin and the lack of research in these institutions", and when DIPF was established "there existed no institute in Western Germany which was engaged in the field of research in education and in teaching the methods of such research. /Consequently/ the institute did not limit its work to the fields that by German tradition are understood to

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1) S. Marklund, "The Role of the Teacher in Educational Innovation in Sweden", The Teacher and Educational Change : A New Role, OECD, Paris (to be published). In Belgium, there is also an experimental school attached to the Ghent university.

2) The academic degree of "Diplom-Soziologe" was introduced in a few German universities only in 1958. In France, the "licence" in psychology was created in 1947 and the "licence" in sociology in 1958 ; only in 1966 were the "licence" and the "maîtrise" in educational sciences created. There are still OECD Member countries without any degree in sociology.

3) Formerly, Institute for Educational Research within the Max-Planck Society and "Hochschule" for International Pedagogical Research, respectively. The Working Group for Empirical Educational Research functioning in Heidelberg since 1966-67 could, to some extent, be classified in the same category.

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be encompassed by pedagogy ; it included law, administration and economics of education as well as sociology" (1). In fact, the development of the activities of DIPF renders this centre near to the comprehensive centres described below (2).

The French Centre de sociologie européenne (in Paris, founded in 1961) and, to some extent, the Centre d'études sociologiques (in Paris, founded in 1946) are also institutions of the same kind. Like the German ones, they are staffed by highly qualified personnel (3).

Two Portuguese centres, one private (the Gulbenkian's Pedagogical Research Centre) and the other public (the Social Research Centre) can also be considered two centres of this type.

d) Comprehensive R & D Centres

These centres are characterised by the large array of research activities performed (generally "applied" research) and by their orientation towards development and dissemination (4). Some of them date back to the nineteenth century and are associated with the retraining of teachers, e.g. the French National Pedagogic Institute founded in 1879, the Danish Royal College of Education dating from 1856 (presently called The Danish School of Educational Studies), or the Institute of Education of the Municipality of Vienna created in 1868. On the other hand, centres of this kind established after 1945 have no teaching and re-training activities.

The administrative status of comprehensive R & D centres varies greatly. They may be entirely autonomous - such as the English National Foundation for Educational Research, created in 1946 and independent since 1947 - or have as part of their mandate to provide the government with R & D findings relevant to policy-making.

At the national level, they either already exist in most OECD European Member countries (excluding Sweden, the Netherlands, Belgium and Norway) or are currently being set up (in Portugal, Spain, Luxembourg and Italy).

They are generally the most important R & D institutions in a country, employing sometimes more than one hundred researchers, developers, disseminators, etc. Scientific personnel is often heterogeneous, comprising university-trained researchers as well as former primary and secondary school teachers, especially in the older institutes.

Distinguishing the Japanese National Institute for Educational Research (NIER) programme from that of the universities and of the Ministry of Education's research unit, T. Harada has written, in terms which apply as well to most European centres of this kind : "Generally speaking, academic educational research at a university is based on freedom of research, while research conducted by the research section of the Ministry of Education is intended to be helpful directly for the administration. Also, it may be said that

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1) Replies of IBF and DIPF to the Council of Europe questionnaire. See Council of Europe, Educational Research European Survey, 1968, Vol. III pp. 94 and 101. Both centres are to some extent related to policy-making ; formally, in the case of DIPF which has as part of its mandate the submission of research findings to the Permanen Conference of the Ministers of Education and to the educational administrators of the Länder for their planning and projects, informally, in the case of the IBF through its participation in the Bildungsrat of its Director and some other members. (See Ingo Schmidt: Institut für Bildungsforschung in der Max-Planck-Gesellschaft, n.d., p. 6).

2) See DIPF's programme in the Council of Europe's Educational Research : European Survey, 1971 edition, Vol. IV, pp. 68-78.

3) The CSE is a "laboratory" of the Ecole pratique des hautes études, associated with the Centre national de la recherche scientifique (CNRS). The CES is a laboratory of the CNRS.

4) This type of R & D centre is also found in two non-European OECD Member countries, Japan and Canada, but not in the United States.

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	National Level	Regional Level	Local Level
Austria	Klagenfurt University of Education (1970) (1)	-	Pedagogical Institute of the City of Vienne (1869)
Canada	-	Ontario Institute of Ed. Research (1966)	-
Denmark	School of Educational Studies (1856) Institute for Educational Research (1964)	-	Emdrupborg School
Finland	Institute of Educational Research (1957)	-	-
France	O F R A T E M (1970) I N R D P (1970) (2)	-	-
Germany	D I P F (1952) German Research Society/ Commission for Educational Studies (1971)	Bavarian State Institute for Educational Research and Planning (1966) and other State institutes	-
Northern Ireland	Council of Educational Research (1967)	-	-
Italy	Projected Pedagogical Laboratory of the National Council for Research	-	-
Japan	N I E R (1949)	-	296 municipal Institutes for Educational R & D (3)
Luxembourg	Pedagogical Institute (1969)	-	-
Norway	-	-	Department for School Experimentation and Research of the City of Oslo' (1964)
Portugal	G E P A E (1965) National Pedagogic Institute (1972) (4)	-	-
Spain	Institute San José de Calasanz (1941) CENIDE (1969)	-	-
Sweden	- (5)	-	Pedagogical Centre of Stockholm (1966-67)
Switzerland	Swiss Centre for the coordination of Educational Research (6)	Institut Romand de Recherches et de Documentation Pédagogiques (1970)	(7)
United Kingdom	N F E R (1946-47)	-	Research Division of the Inner London Education Authority
Yugoslavia	-	Institutes for the Advancement of Education (1960s)	-

Notes :

(1) Of regional origin but subsidized by the central authorities and of national influence.

(2) French Office of Research and Animation of Modern Educational Techniques and National Institute of Research and Pedagogical Documentation. The two institutions succeeded the National Pedagogical Institute (1879).

(3) In Japan there are also 44 centres of educational training at the local level having R & D activities.

(4) The Portuguese N P I did not yet start its activities. The G E P A E (Bureau for Educational Research and Planning) is an agency within the Ministry of Education having administrative and financial autonomy.

(5) As has been stated, the research departments of some schools of education carry out activities similar to the ones of these centres.

(6) Its statute will be similar to that of the Klagenfurt University (see note 1).

(7) Research services depending of the cantons (at the canton level), some of which have some importance (material and personnel resources) e.g. Zurich, Geneva, Tessino, St-Gall, Berne.

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academic research is usually not limited in time while the other is most severely limited. Being in between the two kinds, the nature of educational research at the Institute is not only comprehensive and fundamental but also is practically helpful directly or indirectly for the improvement of education ... at the same time, the Institute has the freedom to conduct its own autonomous research". (1) (Table on p. 21 presents a list of these types of centre and the dates of their creation).

e) Specialised R & D Centres

These are specialised research centres of public origin in which research is characteristically turned to development. Most of them report to various ministries (namely, Labour, Army, Justice), although in some instances they may report to private authorities (such as National Research Councils). In some centres educational research is only a part of the total activity.

In most European countries some specialised centres are to be found. In France, the Centre international d'études pédagogiques of Sèvres reports directly to the Ministry of Education, as does the Agence nationale d'éducation permanente, formely in Nancy, now in Paris ; the Vaucresson Centre de formation et de recherche de l'éducation surveillée (youth adaptation problems) is within the Ministry of Justice ; the INOP the well-known French testing and orientation centre, is formally attached to the Conservatoire des arts et métiers and is associated with the Ecole pratique des hautes études, etc. In Switzerland, the Fribourg Working Group on Curricula Development (FAL) is attached to the Pedagogic Institute of the University of Fribourg. Its work, all being in the field of curricula development and innovation oriented, is mandated and financed by several cantonal departments of public instruction and by the Catholic Church. It is proposed that the future University of Lucerne, which will be devoted in particular to the training of secondary school teachers and to the continuing training of teachers at all levels, creates an experimental Didactics Institute for secondary school studies. (2) In Portugal, a reference could be made to the Institute of Educational Technology, the mental and physical recovery centres and the General Directorate for School Building. All these specialised centres are important R & D institutions.

In the Netherlands and to some extent in Germany and Italy, the creation of specialised, rather than comprehensive, R & D centres follows a deliberate strategy. In addition to the existing Central Institute for Test Development (CITO) in the Netherlands - which works at national level on the development of tests for all educational structures - two other specialised institutes are currently envisaged : one central institute for curriculum development and another for educational technology.

The same policy has been partly followed in Germany where some of the specialised centres operate at national level, namely : the School Building Institute at Berlin, jointly financed by the Länder (operating since 1964) ; the Working Group for Empirical Educational Research at Heidelberg (founded in 1966-67), financed by the VW Foundation and engaged in the study of educational structures ; the Munich German Youth Institute, functioning since 1963 and sponsored by the German Federal Parliament ; the Erlangen Institute for Labour Market and Vocational Research, a scientific branch of the Federal Agency for Labour Placement founded in 1967 ; and the Berlin Pedagogical Centre which operates also at national level (though being predominantly financed by the Land Berlin). The preference for this strategy is felt by some German researchers themselves (3).

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1) T. Harada, The Role of Educational Research in Educational Change in Japan, UNESCO Institute for Education, Hamburg, S 53/17, 1967, p. 16 (mimeo).

2) The reader can find in Educational Research : European Survey for the years 1968 and 1970, published by the Council of Europe, more information on these centres, notably in Germany, Belgium and Italy.

3) Cf. I. Schmidt, op. cit., pp. 2-3.

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The establishment of the Italian "Centri Didattici" was inspired by the same approach. Ten of these centres have been created between 1949 and 1960, all of them specialising in one particular subject : studies and documentation (Florence) pre-primary education (Brescia), "Scuola Media" (Rome), etc. Also in Italy, the National Centre for Audiovisual Teaching Aids (CSA), founded in 1956 and the Italian National Centre for Educational Technology (1969) operate at the national level.

In Scotland, the development work in curricula is sponsored by national centres of this kind. Four have been created so far : for information on the teaching of English (1967), for the development of curricula in Mathematics and Science (1971), for Modern Languages (1971) and for social matters (1971).

B. EXPERIMENT AND DEVELOPMENT AGENCIES

Development based on research is a relatively new notion in the education field and therefore the institutional machinery, personnel and funding still lag behind that for research. (1)

Broadly speaking, development has been viewed in Europe from two different approaches, which might be termed the "pilot" and the "generalised try-out" strategies. The adoption of one or the other has visible effects on the organisation of development institutions. The first is typical of Stage I; the second is more closely associated with Stage II.

The pilot approach leads to the creation of permanent agencies whose major target is experiment and innovation. France provides the most elaborate example with its set of pilot high schools which are systematically experimenting in educational technology (Marly-le-Roi, Sucy-en-Brie, Gagny, etc.) (2). These experiments are controlled by the INRDP, the IFRATEM and the Centre audiovisuel de St. Cloud. In other fields, such as curricula and educational structures, the same approach prevails : e. g. organised experiment in primary education is made in individual schools or groups of schools which become permanent "development bases" within the systems; other experiments with a view to development are also generally carried out in selected classes of primary and secondary establishments. (3)

This leads to the transformation of some selected establishments into schools specialised in experimentation, on the tacit assumption that a few experiences are sufficient to determine their general significance. In policy-making terms, this implies that educational research is not an integral part of educational reform, from which it remains, in practice, separated.

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1) Only two European countries, Sweden and Yugoslavia, broke down expenditures for research and development in their replies to the OECD Educational Growth Enquiry (Sweden, 1970 : 10 million kroner for research, 9 million for development, from the R & D Bureau of the National Board of Education. The breakdown of the total Swedish effort gives $ 3.2 million for research and $ 7.8 million for development. If in-service training of teachers directly concerned with R & D is included, one has to add $ 6 from the State and $ 20 million from the local communities. The figures for Yugoslavia, 1970, are : $ 650,000 for research, $ 150,000 for development). The American figures are significant : in 1968, $ 120 million were allocated to research and $ 111 million to development. But the expected figures for 1975 are, respectively, $ 170 million and $ 330 million. These replies contain no indications as to the criteria used to distinguish research from development, and as it will be seen at Chapter II, Swedish figures are under-estimated insofar as the sums allocated by the Research Bureau of the NBE represent only a part of the grants for R & D.

2) However, in what concerns curricula and educational structures the pilot approach is not the only one used in the reform of education.

3) For example, one school in Lyon, under the supervision of the Centre régional de documentation pédagogique and the Educational Research Institute of Lyon University, and the schools of the 19th arrondissement of Paris, under the supervision of IPN.
For a complete list of French experiments in 1968, see Etudes et Documents, N°5, 1968, pp. 87-101. Almost 1,000 non-coordinated expriments are conducted in this way, controlled by IPN and a few other research centres.

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A second approach was followed in Sweden, when all the nation during the period 1950-1962 gradually turned over from an old model of parallel school systems to a new and comprehensive school with extended compulsory education, integration of primary and lower secondary education, academic and vocational-technical subjects, differentiation through free choice of parents/students, etc. This was introduced through parliamentary decisions by the National Board of Education in a nation-wide programme, where R & D activities were administered by an Experimental Department at the National Board. Try-out activities were done in certain experimental schools, experimental communities and experimental regions. The scope of this was gradually broadened, and at the end of the trial period in 1962 the new system covered half the nation. During the 1960s these activities were followed by consequential changes in upper secondary education including vocational and technical training), teacher training and other types of higher education. All through this period of two decades, the changes in the Swedish education system have been closely followed and supported by R & D activities. (1)

Norway has applied a somewhat similar system. This has been summarised by Norwegian authorities in these terms : "Experimental work is undertaken according to the following pattern. Initial stage : this involves preliminary experimentation in a few schools where a pilot project is to be tried out, revised and tried again, under close supervision. Field work stage (verification stage) : experimentation is extended to a greater number of schools, still under close supervision. Executive stage : the experimental project is concluded. It is evaluated, possibly assessed as desirable, and recommended to the Ministry of Education for general adoption in Norwegian education." (2)

Experiment and development are as much "preliminaries" of future reform as an intrinsic part of the reform itself. Development can be thought of as proceeding through successive, larger concentric circles. Between the pilot stage carried out in ordinary schools and the implementation phase, there is a generalised try-out (the "field-work stage", missing in the pilot strategy) which is subject to continuous revision.

This is the development procedure now followed in Sweden, Finland and Norway. Gradually it is also followed by the United Kingdom, the Netherlands and Yugoslavia. It should be remarked that pilot schools are found in Sweden as in Norway and Finland, but they belong to the ordinary school system. In Finland none of the schools are attached to research institutions. They are financed by the government and work in cooperation with governmental committees. Since the 1960s they have played an important role in educational reform, in particular through their elaboration of new approaches in curricula and the educational materials required. In Italy, the reform which has unified in 1962 the "Scuola Media" (6th to 8th year of compulsory education) had been preceded by the organisation of "observation" and "experimental" classes in hundreds of ordinary schools.

Developmental agencies in these countries tend to be considered as much R & D institutions stricto sensu as centres for coordinating experiments. This is especially true for the Yugoslav Institutes for the Advancement of Education and the Yugoslav Republics' Educational Institutes, or for the Norwegian Council for Experiments in Education.

In the same perspective, there are institutions which associate practitioners and, in this way, participate in development : this is the case of the Dutch Pedagogic Centres and the English Schools Council which at present sponsors about 100 curriculum development and research projects. All of the S. C. 's projects depend on the cooperation of teachers and pupils for their responses. The same role is played by central agencies in the Scandinavian countries, the Council for Experiments in Education in Norway, the Finnish

1) S. Marklund, op. cit.

2) See Council of Europe Survey, op. cit., Vol. I, p. 20.

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National School Board, the Danish Research Board of the Public School and the Swedish National School Board. In Sweden this Board, together with the Office of the Chancellor of the Universities, runs more than 200 R & D projects. Also, a Centre for Experimental Education and School Development was established by the Austrian Federal Ministry of Education and Art in 1971. Its mandate is to coordinate, plan and scientifically control the educational experiments which started at the beginning of the school year 1971-72.

Local dissemination agencies, such as the Dutch educational counselling centres, the 500 teachers' centres in the United Kingdom and the 24 Regional Boards of Education in Sweden serve potentially as "focal points for dissemination and development work, and provide an important potential means of diffusing new practices".

The scope of the developmental approach might best be illustrated through some figures. In Ireland a new curriculum for primary schools is being introduced in 150 selected schools ; there are at present, in Norwegian schools, several hundred ongoing experiments in teaching methods, organisational structures and curricula ; the comprehensive school structure introduced in Rotterdam as a preliminary to its extension to the whole of the Netherlands affected all the schools of the city (representing 13, 000 to 14, 000 pupils and 750 teachers) ; the IMU mathematics project involved the participation of more than 11, 000 pupils in each one of grades 7, 8 and 9. Since 1971-72 a large experimental plan has started in Austria, under the supervision of the Centre for Experimental Education mentioned above. It involves at the present moment 2 % of all Austrian upper primary schools. It is expected that this number will increase up to 7 % and in some Bundesländer up to 10 %.

The reform of secondary education in Belgium now under way is following the same approach. Between 1969 and 1972 the number of reformed State and official subsidized schools (French and Dutch) rose gradually from 24 to 285 (out of 1, 346 in 1966). In 1972, a new series of schools is being introduced in the reform. The choice of these establishments will be made in the same way as in the past : selection, invitation to the head of the establishment to consult the teachers and to inform the parents, collegial advice of the teachers, decision of the Minister. The aim is that all State education establishments, French-speaking at least, participate in the reform by September 1974.

In Europe this development strategy is being increasingly supported. It stimulates spontaneous innovation and is more adaptable than the pilot approach to the widespread willingness to participate which characterises our times. Thus, even where institutionally the pilot approach predominates, it is being corrected in practice by the social dynamics which oppose it. For example, in France the innovative movement which has been apparent for some years is more the result of local initiative (associations and spontaneously organised groups) than administrative efforts. During the last five years, official bodies such as the IPN have been more an instrument for officializing innovations of grass-roots origin than for bureaucratically defining policy at the top. Moreover, the division of IPN was probably decided upon precisely in order to end such a situation, judged unhealthy. The creation of an instrument for development, alongside the Educational Research Studies Service, reflects the willingness to endorse local initiative and at the same time to reduce the importance of official research.

C. DISSEMINATION AGENCIES

Research findings are disseminated in various ways also by R & D centres. Typically :

i) Universities and institutes of university type diffuse research projects and findings through publication in professional magazines and journals.

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ii) Teacher training and further training schools disseminate research by special courses on research developments, journals, newsletters, etc.

iii) In comprehensive R & D institutes, dissemination is carried out through publications, lectures and courses and through the distribution of developed products (new teaching aids, texts, text-books). As mentioned above, these centres are sometimes also engaged in recording R & D projects. Establishments for this can be found in most European countries.

iv) For their particular fields, the larger specialised R & D centres may engage in the same sort of dissemination activities.

The dissemination process may also be undertaken by government bodies as well as research councils, education authorities at different levels, teachers' associations and trade unions, denominational groups, etc.

Very few agencies exist which are devoted solely to dissemination (as the Berlin Pädagogisches Zentrum, for documentation), ERIC-type services are still insufficient and active feedback mechanisms must be improved. However, ERIC material is often used, e.g. in Sweden, the Netherlands and Finland ; and the Council of Europe is trying to build up an international network for dissemination.

There are some exceptions, nevertheless, to this general dearth of agencies or other systematic efforts. For instance, in Sweden the National Board of Education and the Regional Boards of Education, and a number of the French Centres régionaux de documentation pédagogique, operating as regional agencies of INRDP do valuable dissemination work through refresher and summer courses, publications and demonstrations of new educational media. The Swiss centre of documentation in education and learning, Geneva, has, as a part of its mandate, the systematical diffusion of information and documents on the state of Swiss research. At the local level, similar activities are carried out in the United Kingdom by the promising teachers' centres and in Sweden by local education authorities. Combined national guidance, through the Pedagogical Centres, and local action, through the educational counselling centres currently being set up, are envisaged in the Netherlands.

D. CONCLUDING REMARKS

R & D institutions as they now exist expressly serve the functions of knowledge production and development arising from such knowledge. These are the institutions of higher learning, research centres and developmental agencies. Planning, co-ordination and dissemination are those additional functions in the R & D process which are needed if R & D is to deliver its potential impact upon educational policy and practice. Although the need may at first be seen as one requiring new institutions to serve these functions, the perspective which seems to arise from this survey is that the need is to structure or to re-structure the R & D process so that the functions of policy planning and dissemination are an integral part of the knowledge development for education.

Also, insufficient funding and staffing, poor coordination of research efforts and lack of qualified personnel in most centres of non-university type remain, today, permanent obstacles at all stages.

Apart from these general observations, some specific conclusions may be drawn in relations to each type of R & D institution.

a) In OECD European Member countries, universities seem to occupy one of three different positions vis-à-vis the educational establishment of the country : they are largely isolated from educational practice ; or there is a direct line of communication between the universities and the central authorities to which individual research projects are submitted ; or, finally, there exist institutions whose purpose is to orient university research towards current educational needs as they are defined by teachers in the schools.

The first two positions may bring certain disadvantages. In the traditional university scheme, where the research emphasis is the "pursuit of knowledge" and dissemination is limited to professional journals, scientific findings tend to exert little influence outside academic circles. On the other hand, if there is excessive dependence of the research community upon the administration, this may lead to a concentration of research on more narrowly defined priority areas at the expense of larger scientific issues which are relevant to policy-making.

The third approach would then appear sufficiently flexible to encourage more direct communication between educationalists and academic research and to ensure that research programmes are not blind to the needs of educational practice. Even here, further flexibility is needed to relate academic research to educational needs as defined by the broader community beyond the educational institution.

There seems also to be a definite lack of co-ordination of basic research within the university as well as coordination of university, mission-oriented and developmental research, even in those countries where institutional mechanisms exist for this purpose. The same is true for the inter-relationships of the scientific subjects relevant to education (inter-disciplinarity). Full administrative support of inter-disciplinary projects and projects involving basic, mission-oriented and developmental R & D might contribute to ensure both types of coordination.

b) A higher level of research appears to be obtained in those teacher training schools which are located in universities or have similar status ; this would lend strong support to promotion of teacher training at this level. Furthermore, if teacher involvement in R & D appears to be a basic pre-requisite for the success of the whole R & D effort, the interest of teachers can be best awakened during their training years through participation in scientific activities.

c) The research being carried out in autonomous centres of university type appears to be increasingly relevant. Their current work on economic aspects of education, evaluation of educational structures, equality of opportunity or attitudes of teachers demonstrates the significance of "basic" research for educational issues. Collaboration between these centres and remodelled teacher training institutions could contribute to create a sound theoretical basis for mission-oriented research and development.

d) Comprehensive R & D centres which deal with a wide variety of interests may lack focus and a general research strategy when their programmes reflect rather passively existing curricula and educational structures. Also, especially in the older centres, there is often the need for higher scientific qualifications of their personnel. In some cases, it appears also that they tend to become developmental agencies promoting certain activities without having carried out (or borrowed) fundamental research on these particular activities. The present tendency to favour these types of centres would imply that their organisation is a matter of primary concern.

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e) Apart from Germany and the Netherlands and individual cases in other countries, it would appear that centres dealing with specific subjects or groups of subjects are not increasing significantly. However, a system of communication between such specialised centres and their organised development might promote coherence in the national programme of educational R & D.

f) The pilot approach as it is defined by the concept of "experimental bases" for innovations which would then be uniformly enforced in the whole of the educational system seems to have lapsed in all countries. Today, it tends to be commonly accepted that for change to be effective it must not be imposed but, instead, be constantly tested and revised according to the needs, aspirations and experience of pupils and teachers.

g) It appears also that dissemination tends to be viewed today in a similar way, i.e. not as the demonstration and distribution of new materials which would afterwards be employed throughout the educational system, but as a part of an ongoing innovative process having its roots in local rather than in central agencies. This is the pattern of the activities of, for instance, Swedish local education authorities or the United Kingdom teachers' centres.

h) Finally, it is to be emphasized that the basic determinants of the significance of educational R & D are not to be sought in institutional schemes but rather in the spirit animating institutions. Despite the previous remarks, it is certain that almost anything can be the outcome of any arrangement, "centralised" or "decentralised", favouring universities or autonomous centres, comprehensive or specialised, etc. If research and development is not organised so that it directly involves its clientele and if researchers do not feel committed to serve that clientele in line with their full needs, then the "relevance" of R & D will remain marginal. What is at stake is then basically the attitudes of those participating in the R & D process.

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Chapter II

RESOURCES IN FINANCE AND PERSONNEL

Reliable figures on the financing of educational R & D are very difficult to obtain (1). Allocations for research and development in the national budget or in the education budget are seldom identified ; in most instances national authorities give estimates of national expenditures which are not comparable internationally. However, it may be said that the proportion of the education budget devoted to R & D never exceeds 0.5 per cent and very often represents less than 0.1 per cent. It is estimated to be 0.49 per cent in Sweden - the same as in the USA - and 0.16 per cent in the U.K. (2).

Similar difficulties are encountered in collecting information on the number of personnel and on the researchers' status which is not defined in the same way in OECD Member countries. The tables which follow, as well as their subsequent analysis, must therefore be taken as only a tentative and rough assessment of the information available (3).

Consequently, the international comparisons based upon these data are necessarily very approximative and often impossible to make. However, the data which are produced give an idea of, present efforts.

A. TABLES AND ANALYSIS

The large majority of the centres included in Table I are devoted almost exclusively to educational R & D. Due to lack of information, however, it has not been possible for all countries to distinguish institutes working solely in the field of education from those having other fields of activities.

Two groups of countries are identified : those in which more that 50 per cent of the institutes are of small size, most of them university institutes (Austria, Germany, France, Finland) ; and those which have more than 50 per cent of institutes employing more than 11 researchers (Sweden, the Netherlands and Norway). Data are missing to substantiate the claim that the United Kingdom and Denmark belong to this latter group, which is almost certainly the case (4).

1) This is particularly true for the universities : the resources for educational research are generally not within the universities' budgets, nor is a distinction normally made between resources for teaching and for research.

2) W. Taylor, Research Perspectives in Education (forthcoming) where is also to be found an estimate of departmental expenditures in the U.K., by full-time researcher. In the departments of scientific universities : £ 1,574 (annual) ; medicine, health and dentistry : £ 1,618 ; engineering and technical : £ 1,845 in education science : £ 389.

3) Our chief sources have been : the national reports on Educational Research and Planning, OECD, Paris, 1969, (mimeo), the "Country Replies" to the OECD Educational Growth Enquiry (1970), the Council of Europe Survey of 1968 (3 volumes) and of 1970 (4 volumes) and the OECD Report on Educational R & D in the United States (1971).

4) The total personnel of the English NFER was, in 1968, 149.5 full-time equivalents; also in 1968 the Danish School of Educational Studies and the Institute for Educational Research employed 191 full-time equivalents.

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Table I

Institutes of educational R & D classified by size (number of equivalent full-time researchers) (1) in 1968

Size (2) / Country	1-5		6-10		11-20		more than 20		Total	
	no.	% of total	no.	% of total	no.	% of total	no.	% of total	no.	%
Austria	15	78.9	1	5.3	2	10.5	1	5.3	19 (3)	100
Finland	4	57.1	1	14.3	1	14.3	1	14.3	7	100
France	21	60.0	7	20.0	4	11.4	3	8.6	35	100
Germany	40	58.0	14	20.3	11	15.9	4	5.8	69	100
Norway	1	16.6	1	16.6	2	33.6	2	33.2	6	100
Sweden	1	10.0	1	10.0	3	30.0	5	50.0	10	100

1) 1 full-time = 2 part-time.

2) As expressed by number of researchers.

3) 23 in 1971/72 (14 at the university, 6 administrative, 2 private and 1 co-operative). Data supplied by the Austrian federal Ministry of Education and Art.

Table II

Total Personnel (scientific and administrative) employed in educational research in 1968

Country	Full-time	Part-time	Total	Full-time equivalents
Austria	84	52	136	110
Finland (1)	52	20	72	62
France	354	215	569	461.5
Germany	722	341	1,063	890
Netherlands	-	-	545	323
Norway	96	76	172	134
Sweden (1)	257	133	390	323.5

1) Scientific personnel only.

Table II a

Total Personnel (scientific and administrative) employed in educational R & D as a percentage of the total personnel, by status (1968)

	Full-time	Part-time	Total
Austria	61	39	100
Finland	72	28	100
France	62	38	100
Germany	67.9	32.1	100
Norway	56	44	100
Sweden	66	34	100

1) The total personnel of the English N F E R was, in 1968, 149.5 full-time equivalents ; also in 1968 the Danish School of Educational Studies and the Institute for Educational Research employed 191 full-time equivalents.

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Table III

SCIENTIFIC PERSONNEL EMPLOYED IN EDUCATIONAL R & D IN 1968

Country	Full-time	Part-time	Total	Full-time equivalents
Austria	67	39	106	86.5
Finland	52	20	72	62
France	181	202	383	282
Germany	321	244	565	443
Netherlands	-	-	454	232 (1)
Norway	75	66	141	108
Sweden	257	133	390	323.5
United States			4,035 (2)	

1) Expressed in man-years.
2) For 1964. This figure includes : R & D, and D programme directors and staff, hard-core, regular and occasional producers, (Reviews of National Policies for Education : The United States, OECD, Paris, 1971, p. 308). It does not consider 90 stimulators and co-ordinators of R & D and D activities.

Table III a

SCIENTIFIC PERSONNEL EMPLOYED IN EDUCATIONAL R & D AS A PERCENTAGE OF TOTAL PERSONNEL, BY STATUS (1968)

Country	Full-time	Part-time	Total
Austria	63	37	100
Finland	72	28	100
France	47	53	100
Germany	56.8	43.2	100
Norway	53	47	100
Sweden	66	34	100

Table IV

AUXILIARY ADMINISTRATIVE PERSONNEL PER RESEARCHER IN EDUCATIONAL R & D IN 1968

Country	Auxiliary personnel per Scientific personnel
Austria	0.3
Finland	0.6 (1)
France	0.5
Germany	1.0
Netherlands	0.4
Norway	0.2

1) 0.8 in 1972.

Tables II and IIa, III and IIIa contain statistical data for total personnel and scientific personnel, according to whether they are full-time or part-time. In the absence of more refined data, a breakdown of personnel between research and teaching has not been possible. Also, the defining criteria of scientific personnel

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vary from country to country so that international comparisons are hazardous to make (1). Not surprisingly, the number of part-time researchers appears very high in those countries where the majority of R & D institutes are of small size.

The ratio of auxiliary personnel to scientific personnel in Table IV expresses the number of auxiliary and administrative personnel per researcher. It may be considered as a sort of technological ratio in research activity (such as the ratio engineer/worker in industry). If there had been sufficient information, it would have been interesting to calculate this ratio by type of research project and by size of institute.

It is to be remarked that in a per capita calculation of investments (in relation to the total population of the countries), Sweden would occupy the first place in Table V ($ 1.9).

Our ignorance concerning the structure of financing prohibits any international comparison from being made on the basis of Table V, constructed from information which generally gives only total sums. However, W. Taylor was able to establish a breakdown for the United Kingdom (see table page 34).

Swedish authorities have also provided the following estimate. It indicates the following breakdown for the present fiscal year (1971-72) in Million Sw. Kroner :

National Board of Education :	
Grants for Educational R & D	20
NBE personnel	3
Office of the Chancellor of the Universities	
- Research grants	6
- Personnel	0.5
Swedish Council for Social Science Research and Bank of Sweden Tercentenary Fund	3
R & D within the Swedish Broadcasting Corporation and Commission on Television and Radio in Education	5
R & D activities of other Commissions under the Ministry of Education	3
Supplementary grants for development activities in Schools of Education pilot schools	16

This gives Sweden a quite unique position in Europe, spending more money in R & D activities than any other European country (2).

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1) It might be remarked that if a relationship is established between full-time equivalents and national populations in Tables II and III, Sweden appears by far in the most favourable position (0.00040 %), and this on the basis of its scientific personnel only.

2) Besides, Sweden spent during this year (1971-1972) 36 million kroner on in-service training of teachers, to which should be added extra community expenses on in-service training of some 100 million kroner.

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Table V

FINANCING OF EDUCATIONAL R & D

Country	Year	National Currency (millions)	U.S. Dollars (*) (millions)
Austria	1972	15.564	0.623 (1)
Belgium	1969	57.300	1.146
Canada	1969	15.000 (2)	15.000
France	1970	20.000 (3)	3.900
Germany	1968	26.500	6.736
Greece	1970	2.000 (4)	0.067
Ireland	1969	0.075	0.180
Italy	1972	2.000 (5)	3.200
Netherlands	1969	15.000 (6)	4.143
Norway	Annual estimate	7.000 (7)	0.980
Portugal	1971	32.000 (8)	1.280
Spain	1969	0.927 (9)	0.013
Sweden	1971-72	55.000 (10)	11.000
United Kingdom	1971-72	3.500 (11)	8.450
United States	1968		250.000 (12)
Yugoslavia	Annual estimate		0.800

1) Data provided by the Austrian Federal Ministry of Education and Art.

2) Of which 50 % in Ontario. Source : Perspective 1975, Economic Council of Canada, 1969.

3) Source : Rapport de la Commission de l'Education du 6e Plan, page 171.

4) Expected figure for 1975 : 6 million Drachmae.

5) Allocated in the budgetary previsions for 1972 of which, however, only 12 millions have been used for research (the rest has been employed in the rise of salaries or "spared"). On the other hand, the National Research Council devoted in 1972 some 80 millions for educational research. 3,500 millions of lire are foreseen in 1973 for research and educational technology, under new ways which will allow for their real utilisation. In February 1973 engagements amounting to the sum of 500 millions had already been taken.

6) Government expenditure in 1969 : 10, 700, 000 Guilders.
Government expenditure in 1970 : 14, 200, 000 Guilders.

7) The Norwegian Research Council for Science and the Humanities has estimated the expenditure needed in 1975 at 20 million Kroner.

8) This sum refers exclusively to the three most important Portuguese research centres and, in relation of two of them, it is not possible to distinguish educational R & D expenditures from research activities in other fields. It may be estimated that in 1969, sums for educational R & D amounted to 12, 500 millions of escudos. The amount foreseen for 1975 is of 50 millions of escudos.

9) Expected figure for 1971 : 1, 825 millions Pesetas.

10) Data provided by the Swedish Ministry of Education.

11) This approximate estimate was established by W. Taylor, Research Perspectives in Education (forthcoming).

12) Expected figures for 1975 : $ 550 millions.

(*) Non-devaluated.

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The distribution of resources according to their source (not indicated in Table V) points to a correlation between decentralised political structures and private sponsoring. In centralised countries (such as France, Sweden, Norway and Denmark) the sponsoring of R & D is almost exclusively of public origin. In decentralised countries (federal states and others) private financing plays a bigger role : according to available information, 28 per cent of Belgian research is sponsored by foundations and 31 per cent by religious associations ; and private sources contribute 13 per cent of the total funds allocated to educational R & D in Germany, 23 per cent in Austria and 13 per cent in the United Kingdom.

BREAKDOWN OF EDUCATIONAL R & D FINANCING IN THE UNITED KINGDOM

Source	Year	Projects, Programmes & Research Support	Administration & dissemination, etc.
Department of Education and Science (including NCET)	1970/71	501,000	30,000
Social Science Research Council			
a) Research Grants	1970/71	209,056	25,000
b) Studentship	1970/71	81,000	
Educational Projects supported by other Research Councils	-	50,000	
Schools Council	1970/71	750,000	500,000
Nuffield Foundation	1970	188,000	20,000
Leverhulme, Gulbenkian and other independent Foundations		250,000	25,000
University Grants Committee			
a) 10 % of Education staff time	1969	220,000	
b) Research support	1969	50,000	
Local Authorities			
a) Grant to NFER	1970/71	130,000	5,000
b) Own research		50,000	
c) Secondment of teachers to research based advanced study programmes	1970	225,000	
TOTAL		2,704,056	605,000
		£ 3,309,056 approx.	

Source : W. Taylor, Research Perspectives in Education (forthcoming).

The notes to Table V give interesting data on the current development of R & D : by 1975, increases in expenditures are expected to rise four times in Portugal and three times in Greece, and two times in Spain between 1969 and 1971. The same trend can be observed in more advanced countries : for instance, Dutch funds from government sources rose from 10,700,000 Guilder in 1969 to 14,200,000 Guilder in 1970 (excluding the sums allocated to universities and the expenditures on educational R & D made by local authorities). In the United States, from 1968 to 1975, the funds for research, development, dissemination and research training were predicted to double (before recent cutbacks). Funds of public origin are expected to rise £ 600,000 in the United Kingdom between 1965 and 1975 (from £ 2,000,000 to £ 2,600,000). In Germany a "substantial increase" is also predicted for the next years, accompanying the reconstruction of the research apparatus which is currently taking place.

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Such an accelerated rate of investment illustrates the overall public concern with educational R & D. It is also significant that the North American allocations to development are expected to surpass, by far, those for research and that in Sweden the development budget is already as large as that for research. Analysis of the data suggests that in countries where Stage I activities still predominate, R & D centres are small. The percentage of part-time staff is high and expenditures are low in comparison with Stage II where over 50 per cent of the institutes employ more than eleven staff, where total staff involved is not necessarily larger but is mainly full-time and expenditures are higher, if only because of the greater importance given to development activities. However, in Sweden expenditures on research alone remain higher than in most countries which are still mainly at Stage I.

The massiveness of the gap between European countries and the United States in the resources going to educational R & D is also suggested from this data :

	Total personnel	Scientific personnel
Europe (1968)	2,945[1]	1,955[2]
United States (1964) . .		4,035
	Financing (in millions of U.S. Dollars)	
Europe[3] (1968-1972)	43,000 approx.	
United States (1968)	250,000	

However, more data would be required to further interpret the nature of this gap. Sweden spends as much money on educational research proportionally as the USA. The data would suggest that the United States researcher is matched by financial resources which are in the order of three times the amount available in Europe. However, if further data substantiate this order of difference, they should also reveal the extent to which this is due to high American salaries, a differential ratio of high as against low salaried staff or greater proportional expenditure on "overheads" in the United States research effort.

B. CONCLUDING REMARKS

Some remarks of a more general nature might be added. First, it should again be emphasized that a systematic effort is needed to complete the missing data on personnel and financing for educational R & D. Reliable international comparisons cannot be made without better information on the sources of financing and its distribution as well as on the breakdown of research personnel according to status and the equivalences of national qualifications and careers. Also, no uniformity in distinguishing between basic, mission-oriented and developmental research has yet been established.

a) Educational R & D expenditures remain very low in European OECD Member countries. In most of them they represent less than 0.1 per cent of total educational expenditure (compared to 0.5 per cent in the United States, the only corresponding country in Europe being Sweden, with roughly the same figure). Given the general dissatisfaction with current educational structures,

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1) In addition to the data given in Tables II and III, statistical information available for the United Kingdom, Denmark and Italy has been taken into account in arriving at this figure.

2) In full-time equivalent.

3) Covering 14 countries, see Table V.

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however, it might be asked whether it is not in the end more expensive not to finance the scientific contribution to educational change than to finance it in bolder and more resolute terms.

b) In view of current needs and constraints, priority schemes for available resources need to be devised. Fairly definite percentages should be attributed to the various areas of research as well as to development and innovation.

c) In Stage I the role and prestige of research tend to be low and confined while expenditures are also low. As countries move into Stage II, expenditures rise, particularly because of the high cost of development. High prestige and high investment like low prestige and low expenditures are inter-reacting.

d) The data available on personnel (Table I) serve to reinforce the same conclusion. At Stage I the majority of centres are much smaller than at Stage II, whereas the total volume of personnel shows little variation. There is, then, in the former a proliferation of very small institutions of necessarily limited impact. It seems clear that an effort to re-group them is necessary.

e) If, in the coming decades, education is expected to perform a role in social change with an impact comparable to that of industry in the past, a comparison of the sums allocated to educational R & D and to industrial R & D is perhaps justified. It is perhaps interesting to note that, whereas in the United States expenditures for industrial research vary between 5 per cent and 30 per cent according to the type of industry, current proposals are to increase educational R & D to a range between 1 per cent and 5 per cent of total educational expenditure.

f) Finally, two questions might be asked concerning the effectiveness and efficiency of investments.

   i) To a certain extent, it appears that research findings might be internationalised. (The same does not, of course, apply to development.) This would make it easier to obtain a critical mass of the research relevant to education, so that investments on research need not necessarily be too big in all countries at all times.

   ii) The effectiveness of investments appears also to depend on general attitudes toward change. In an environment hostile to change a policy push might appear necessary implying the need for high investments. This would not be the case in an environment turned to innovation where, on the other hand, money might be invested to catalyse volunteer participation which cannot be quantified.

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Chapter III

SUBSTANTIVE AREAS OF RESEARCH

Information on research programmes as on financing and personnel, is generally faulty and sometimes contradictory. Furthermore, very few studies are available on research methodologies. Like the previous ones, the tables presented in this chapter have only an indicative value. Furthermore, a uniform classification of research topics has not yet been established. In the absence of any international agreement on terminologies or on the criteria for the classification of subjects, comparisons between different countries - which would be a reliable indicator of the state of the art - become very difficult to make.

It may nevertheless be observed that the analysis of research projects confirms the distinction between the two stages identified earlier. At Stage II, research is concentrated more specifically on the learning process in the schools, whereas countries still emerging from Stage I show predominance of purely theoretical research. This is illustrated by the distribution of research topics in Tables VI through XV which follow :

A. TABLES AND ANALYSIS

Table VI

RESEARCH SUBJECTS IN FRANCE (1968)

Subject	Number of Projects
History of education	15
Comparative education and education abroad	20
Research in sociology	47
Research in psychology	72
Planning and administration	17
Structures	18
Objectives	2
Evaluation	10
Orientation and selection	15
Teaching methods and techniques	38
Curricula	8
Training	15
Resources	8
Others	21
Total	306

Sources : Courrier de la recherche pédagogique ; Bulletin du Laboratoire de pédagogie de la Sorbonne ; DGRST : Répertoire national des laboratoires : Sciences humaines et sociales, Unités de recherche, Paris, 1968.

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Table VII

RESEARCH SUBJECTS IN FRANCE (1970)

Subject	Number of projects
Curricula	28
Teachers	9
Teaching Methods	36
Sociological and Psycho-Sociological Research	15
Psycho-Pedagogical Research	60
Evaluation, Selection, Guidance	12
Educational Structures	30
Adult Education	12
Remedial Education	16
Vocational Education	5
Others	4
Total	227

Sources: Council of Europe, Educational Research : European Survey, 1970, Vol. III.
This table is based only on the answers to a questionnaire sent by the Council of Europe to research centres. Some documents, published after 1968, indicate other research projects, cf. namely the list of spontaneous research activities published by the "chargé de mission à la recherche pédagogique", and the list of ongoing research published by CNRS and INRDP.

Table VIII

RESEARCH SUBJECTS IN THE NETHERLANDS (1966)

Subject	Number of projects
Aims and content of education	27
Training and re-training of educational personnel	13
Didactic procedures and tools	60
Evaluation, selection and guidance of pupils	77
Structure and functioning of educational organisation	59
Education and social environment, learning problems	23
Educational research, methodology and organisation	3
Introducing changes in education	4
Time-table of school activities	-
Parents and school	1
Others	29
Total	296

Sources: "Educational Research and Planning in the Netherlands" by H. Veldkamp and W. Voster, OECD Document, 1969 (mimeographed).

"Sociaal-Wetenschappelijke Raad", Register van lopend Onderzoek in de Sociale Wetenschappen 1966-1967.

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Table IX

RESEARCH SUBJECTS IN THE NETHERLANDS (1970)

Subject	Number of projects
Curricula	15
Teachers	6
Teaching Methods	20
Sociological Research	3
Psycho-Pedagogical Research	14
Evaluation, Selection and Guidance	11
Educational Structures	22
Remedial Education	12
Vocational Education	6
Total	109

Source : Council of Europe, Educational Research : European Survey, 1970, Vol. IV.

Table X

RESEARCH SUBJECTS IN ITALY (1968)

Subject	Number of projects
Curricula	1
Teachers	9
Teaching methods	3
Basic pedagogical research	4
Basic sociological research	10
Basic psychological research	4
Testing, evaluation and efficiency	18
Educational structures.	18
Professional education	10
Planning	10
Education and professional life	7
Other	3
Total	97 (1)

1) The projects considered here are of empirical and experimental nature and are undertaken in all kinds of institutions. They do not refer to historical-philosophical research which is one of the chief activities of university institutes and chairs (cf. Council of Europe Survey, 1968, Vol. II).

Source : Documentazione sulle Ricerche Italiane
(Programma speciale CNR sui problemi dell'Educazione).

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Table XI

RESEARCH SUBJECTS IN GERMAN UNIVERSITIES AND COLLEGES OF EDUCATION (1967) (1)

Subject	Number of projects
Historical-philosophical	41
Curricula	32
Teaching	12
Teaching methods	18
Adult and further education	3
Comparative education	20
Basic pedagogical research	12
Basic sociological research	14
Basic psychological research	22
Testing, evaluation, educational efficiency	17
Total	191

1) For a breakdown between universities and colleges of education, see Chapter I. A. b.

Sources : - Dokumentation Forschungsarbeiten Pädagogik. Pädagogisches Zentrum, Berlin, 1967.
- Forschungsdokumentation zur Arbeitsmarkt und-Berufsforschung (3 volumes) published by the Institut für Arbeitsmarkt-und Berufsforschung der Bundesanstalt für Arbeit, 1972.
- Dokumentation Forschungsarbeiten Erziehung Wissenschaft, Pädagogik Bildungsforschung 1968-1969, PZ, Berlin.
- Forschungsregister Hochschulplanung, 1972, ed. Stuttgart University.
- The Council of Europe Survey, 1970, Vol. IV.

Table XII

RESEARCH SUBJECTS IN SWEDEN (1971)

Subject	Number of projects
Curricula	14
Teachers	17
Teaching Methods	33
Sociological and Psycho-Sociological Research	32
Psycho-Pedagogical Research	31
Evaluation, Selection and Guidance	22
Adult and Recurrent Education	10
Educational Structures	22
Special Education	12
Vocational Education	10
Others	12
Total	215

Source : National Board of Education, Current School Research in Sweden, 1971.

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Table XIII

RESEARCH SUBJECTS IN PORTUGAL (1972)

Subject	Number of projects
History of Education	3
Comparative Education	1
Resources	3
Training	5
Objectives	3
Planning	14
Administration	3
Testing and Evaluation	7
Teaching methods and techniques	2
Orientation and selection	1
Curricula	1
Teachers	2
Educational structures	6
Special Education	1
Pre-Primary Education	1
Education and Science	1
Research in Sociology	3
Research in Psychology	9
Total	66

Source : Portuguese Ministry of Education.

Table XIV

RESEARCH SUBJECTS IN SWITZERLAND (1971)

Subject \ Projects	Finished	In Progress	Total
Curricula	6	27	33
Teachers	2	3	5
Teaching Methods	3	17	20
Sociological and Psycho-Sociological Research	9	10	19
Educational Structures	15	15	30
Evaluation, Selection, Guidance	15	25	40
Psycho-Pedagogical Research	5	15	20
Adult Education	2	1	3
Others	4	7	11
Total	61	120	181

Source : Enquête sur l'état de la recherche pédagogique en Suisse, 1971, IRDP ed.

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Table XV

RESEARCH SUBJECTS IN FINNISH UNIVERSITIES AND EDUCATIONAL RESEARCH INSTITUTES (1971)

Subject	Number of projects
History of education	4
Comparative education	7
Planning and administration	5
Objectives	1
Methodology, didactic procedures	13
Evaluation	24
Structure of education, curricula	10
Training of teachers	13
Adult education	2
Home and school	2
Mental health	3
Mass communication media	2
Pre-primary education	3
Materials	4
Civic education	3
Physical education	2
Total	98

Source : Finnish Ministry of Education.

History and philosophy of education as well as comparative education are today much less important than in the past in the Northern area. The information available on research in the U.K., Denmark and Norway confirms the Dutch, Swedish and Finnish findings. On the contrary, these domains remain an important part of French, German or Italian research. But there are differences, of course, within the group. In research on the history of education, for instance, there is a clear distinction between German projects - connected very often with themes of recent history whose relevance to the present educational system remains acute - and, for instance, French or Italian research where this is not, as a rule, the case.

Projects in psychology and sociology relevant to education represent a large part of European research. Although not evident from the tables, in the Netherlands, the U.K. and Scandinavian countries, research is often concerned more specifically with the process of learning in the schools.

Research on curricula and evaluation is comparatively more important in Sweden and the Netherlands than in the other countries ; however, the number of curriculum projects in Germany, and those on evaluation of school performance in Italy should be noted.

Research on institutional aspects represents a large part of Italian and Dutch research, a smaller part in France and Sweden and is very low in Germany. The abundance of Italian and Dutch projects in this field reflects a growing concern with the adaptation of education to the rapid socio-economic changes since the 'fifties.

It is significant to note, however, that Dutch research, more than Italian, is very much concerned with the ways whereby education can influence social change, whereas Italian projects on the whole are still dealing with the inadequacy of the educative establishment to reflect social changes. France is moving in the same direction, although at a much slower pace ; this type of research was almost non-existent in French catalogues before the mid-sixties.

There is a smaller amount of research both in Germany and Sweden on these topics but for different

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reasons. Whereas in Sweden the general consensus on educational aims and on the reasonable adequacy of educational structures to meet social needs and aspirations explains the paucity of research on institutional aspects of education, this is hardly the case in Germany. German educational research seems not yet to have responded to a set of problems which are fundamentally akin to those of France or Italy.

The information available on methodologies and research techniques, leads one to think that, in broad terms, the scientific apparatus of educational R & D has reached a state of development in Scandinavian countries, the U.K., the Netherlands and Germany which is higher than elsewhere.

B. CONCLUDING REMARKS

At Stage I where finance is limited and full-time research posts are relatively few in number, areas of research tend to be of a more traditional and apolitical nature.

The type of research areas most common in any particular country are likely to be products of the following :

a) Finance available for research in particular areas.

b) Flow of workers into research programmes :

- from first degree work in education ;
- from other academic fields.

c) The level of public knowledge of important, social, economic and political issues.

d) Political and social pressures preventing or encouraging the investigation of particular areas.

e) Academic traditions.

Between these five factors a close relationship may be ascertained. Where the level of public knowledge of key social, economic and political issues is limited, certain types of questions are unlikely to be investigated in any depth. Similarly, where access to higher education and possibilities for adult education are limited, there seems little possibility for academic traditions and conventional research areas to be challenged. The resulting pure theoretical, non-policy oriented research cannot justify support from government funds and so a part of contemporary enquiry remains generally irrelevant.

Conversely, in environments where new issues are more likely to be raised, research may be expected to relate more clearly to political issues and thus to attract more readily government funds. The danger is that this very spirit of enquiry may become dominated and directed by politically-controlled purse-strings and may rapidly exhibit its own form of atrophy.

A context remains to be devised in which research might remain independent yet attuned to current issues and problems, with consistent implications for development programmes. In order to obtain such an environment, it is necessary for the independence and autonomy of the researcher to be combined with better financial and institutional resources. The very big advances inherent in progression to Stage II should not be gained at the sacrifice of the virtues of the free research characteristic of Stage I.

This also suggests that the recruitment and utilisation of research personnel may have to be reorganised in order to ensure an adequate and relevant range of research interests. A regular movement of personnel from full-time occupations into research in their areas of competence and back again into teaching may prove significant.

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Chapter IV

POLICY-MAKING AND PLANNING FOR EDUCATIONAL R & D

Until the early fifties, research policies and priorities and, in more general terms, management of R & D were not a major concern of policy-makers. In the majority of countries, there were few mechanisms available for the co-ordination of research centres (and still fewer for programme planning), for co-ordination of R & D sponsoring agencies, or for any link-up of research to educational practice.

One of the noticeable developments of the last two decades, however, has been an increasing concern for co-ordination and planning and this has affected research as well. It seems to be a phenomenon of all countries, whatever stage of research development they have reached, though the nature and significance of the co-ordination may vary. Some of the institutional arrangements involved will be described and an analysis made of planning mechanisms in the strict sense of the term.

A. THE CO-ORDINATION AND INTEGRATION OF R & D

Agencies for the co-ordination of R & D created in recent years, for example, are : the Austrian Institute for Educational Research and Counselling (1967) and the Centre for Experimental Education and School Development (1971) devoted to the co-ordination, planning and scientific control of educational experiments; the CENIDE in Spain (1969); the French Committee for Educational Research and Development (1968) ; the Swiss Centre for Co-ordination of Educational Research set up at Aarau (1971); and the German Institute for Co-ordination of Curricular Research (soon to be set up) and the National Pedagogic Institute which is being created in Portugal will also have, beyond its research activities, a role of co-ordination.

In Denmark, the Danish Research Board of the Public Primary and Lower Secondary School (1969) serves, in an advisory capacity, the Ministry of Education and supervises most of the research and innovation in Danish schools.

In the Netherlands (where educational decentralisation is based on educational freedom of the denominations) the Ministry of Education is responsible for the co-ordination of R & D activities in co-operation with the Foundation for Educational Research (SVO). Research on university education, which is even more decentralised, is co-ordinated by the Central Bureau for Research on University Education and by a group of heads of university education research centres. The process of dissemination in the whole of the country is co-ordinated by the denominational Pedagogical Centres (1) and carried out by the local and regional educational counselling centres and in the university education sector by the centres for research on university education.

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1) However, the personnel of these centres in 1968 was about 35 in all (in a country with 18,000 schools and more than 125,000 teachers). See H. Veldkamp and W. Voster, "Educational Research and Planning in the Netherlands", OECD Document, 1969, (mimeographed).

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Swedish research policy is basically defined by the Special Bureau for Educational R & D, operating within the National Board of Education since 1962 (which is the successor of an Experimental Bureau set up in 1951) and by the Office of the Chancellor of the Universities, through a bureau created in 1969. The National Board functions primarily as a "planning and controlling" agency for the school research being carried out in the country's schools of education institutes since the early 1960s, but it also attributes funds to the universities.

In Finland, research co-ordination is under the responsibility of the Research Council for the Humanities. The National School Board, the School Department and the Department for Higher Education and Research of the Ministry of Education are the main users of applied educational research. Co-ordination of research pursued by these is under the responsibility of the Ministry of Education.

In some other countries, formal co-ordinating bodies do not exist, other mechanisms being used to encourage specialisation of functions coupled with general articulation of R & D efforts. In Norway, for instance, this appears to be the result of the strong desire for diversification in the sources of financing. In the U.K. it is consistent with the general preference in that country for informal personal understandings over formal mechanisms.

The arrangements for financing of educational research in Norway are as follows : regular university appropriations for research, allocated by the universities themselves to various fields, including education, and managed by the university institutes ; appropriations from the social science branch of the Research Council for Science and the Humanities ; appropriations from the State Council for Experiments in education; appropriations from a special fund on the Ministry of Education budget, upon the advice of a board composed of four representatives of the Science Council and the Council for Experiments, respectively.

The deliberate purpose behind this arrangement is a diversification of sources for educational research, each source representing somewhat different value structures. Universities will tend to support fundamental research, though not exclusively. The Ministry will tend to favour applied research and development, though far from exclusively. But no formal boundaries are drawn up between the fields of operation of the various financial bodies, and practical co-ordination is ensured by considerable overlap of individuals participating. No attempt is made to ensure consistency, as different value structures are permitted to operate simultaneously. A researcher turned down by one agency because of its particular criteria of selection may be accepted by another operating on different criteria.

In the United Kingdom there are a number of bodies which promote research in different sectors. Fundamental research carried out in the universities is financed essentially by the University Grants Committee and, to a lesser extent, by the Social Science Research Council ; the Schools Council commissions most of the projects dealing with programmes and evaluation ; the National Council for Educational Technology is responsible for research carried out in this particular field. A substantial part of the activities of the NFER is devoted to research and development. The status of these different agencies will be examined at a later point ; there is a wealth of inter-connections between them but no formal co-ordinating mechanisms.

The same is true of Germany though the need for "a global plan for the activities of educational research institutions" has been actively felt in recent years (1). At present two public agencies, the Bildungsrat und Wissenschaftsrat, control R & D insofar as they commission research projects according to defined

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1) Bildungsminister für Bildung und Wissenschaft, Bildungsbericht'70, p. 137. The Permanent Conference of the Ministers of Education decided in May 1968 to participate in the determination of priority areas for R & D.

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priorities, but they by no means cover the entire field. An important recent venture is the decision of the Länder Ministries to create a central institution to co-ordinate and encourage work in the field of curriculum research. A Commission for Educational Studies was set up in 1971 within the German Research Association.

It is also interesting to observe that in some nothern European countries there tends to be a specialisation of research councils. Whereas in Belgium, Italy, Switzerland and France only national research councils are to be found, having sometimes as part of their mandate co-ordination or sponsoring of educational R & D, the same functions, when they exist, are performed by social science research councils (in the Scandinavian countries and the United Kingdom) or, even more specifically, in the Netherlands, an educational research council.

Two other institutionalised developments illustrate the tendency towards a closer link than in the past between the authorities and R & D. One is the reinforcement of national centres, comprehensive or specialised, as discussed in Chapter I ; the other is the increasing practice of contract research. These contracts constitute an instrument for indirect government control and planning of educational R & D. As T. Husén puts it : "... in the postwar period, the scholars have abandoned their academic ivory tower in increasing numbers, not little enticed by the enormous resources (by earlier standards, at least) which government committees and authorities can put at their disposal" (1).

B. RESEARCH PLANNING AGENCIES

The defining of research policies in most countries remains the responsibility of a number of agencies, governmental or otherwise. There are also some agencies which, though of public origin, do not belong to the government, research councils being the most important among these.

Furthermore, research programming is not done exclusively by education authorities but is also carried out in other ministries, namely, Labour, Defence, Health and Justice ; and in some countries (e. g. Sweden and the United Kingdom), research policy is not determined solely by central bodies. Thus there are different agencies which contribute to policy-making and often they co-exist in the same country.

- Ministry of Education : central, regional and local authorities ;
- other ministries ;
- research councils of varying competence, attached in different ways to public authorities.

Indirect research planning through private financing has not been considered given its minor importance and the increasing trend to associate foundations with public authorities.

a) Education Authorities

In the majority of centralised countries - France, Finland, Portugal or Sweden, for example - R & D priorities and budgets are in principle discussed and established at the ministry level (in Sweden, in the National Board of Education) (2). Central authorities are at the same time the chief sponsors of R & D.

1) T. Husén, "Two Decades of Educational Research in Sweden", in School Research Newsletter, November 1969, p. 2.

2) This is done through a number of agencies. In Portugal, for example, the definition of policies is chiefly done by the Institute of Higher Culture, the Bureau for Educational Research and Planning as well as by the National Board for Scientific and Technological Research.

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In federal or semi-federal countries, regional and local authorities play a considerable role in the establishment of research policies ; this is especially true for the United Kingdom and Yugoslavia.

The English Schools Council and the National Foundation for Educational Research are institutionally attached to local education authorities who are represented on the governing boards of both institutions and contribute to their financing (1).

In Yugoslavia, research policies appear to be almost entirely determined by regional and local authorities. The role of the Federal Council for the Co-ordination of Scientific Research has until now been limited. Research activities are carried out for the most part in the Republics' Institutes for the Advancement of Education, predominantly financed by the educational financing associations at Republic level which, along with other business and social organisations, contribute also to the funding of universities.

Swiss and German research policies are also partially elaborated at regional level : in Switzerland, through the Pedagogical Services of the Cantons and in Germany by the Ministers of Education of the Länder.

b) Other Public Authorities

It is not possible to classify the various ways in which other ministries participate in educational research policy-making. Their intervention is mainly financial through the granting of research contracts. These are often very important as, for example, in France, where the Délégation générale à la recherche scientifique et technique is, after the Ministry of Education, the main sponsor of educational R & D. The DGRST reports to the Ministry of Industrial Development and Scientific Research and finances a great volume of research under contract and "actions concertées". Information on the sums allocated by different ministries to R & D educational activities in OECD European Member countries is very seldom available.

c) Advisory Bodies and Research Councils

Research councils, committees and boards of varying competence, and even research centres, participate in policy-making through both their advisory and decision-making capacities.

i) Advisory role : The German "Bildungsrat" and "Wissenschaftsrat", for instance, as well as the Committees of the Permanent Conference of the German Ministers of Education, the Advisory Council of the Swedish National Board of Education and the French Centre national de la recherche scientifique have a consultant role (though they also finance R & D activities).

Proper research centres, especially "comprehensive" ones, may also perform advisory functions. This is the case, for example, of the Danish Institute for Educational Research, the Munich State Institute for Educational Research, the French IPN until 1970 and the Finnish Institute for Educational Research.

ii) Decision-making role : Research councils which contribute to determining educational research policy may formulate science policy in general, or only policy for the social sciences, or, more narrowly still, policies solely in the field of education. This appears to reflect the position attributed to R & D in the overall education system and is associated with Stage II rather than Stage I. National research councils are found in Switerland (Conseil suisse de la science), in Italy (Consiglio Nazionale della Ricerca), France (Centre national de la recherche scientifique) (2). None of them has special committees for educational

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1) The Schools Council receives equal amounts of grant from central government, through the Department of Education and Science, and from the local education authorities. In 1971-72 both contributed £ 610,000 towards the Council's total income for the year of £ 1,3 m.

2) See CNR, Relazione Generale sullo Stato della Ricerca Scientifica e Tecnologica in Italia, 1968. The French CNRS, though not juridicially being a research council, performs the functions of one.

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research, and there is no breakdown in their annual reports as to subsidies allocated to educational research or projects sponsored in the field of education.

In other countries one finds social science research councils, councils for educational research and also committees for special educational subjects.

The English Social Science Research Council, created in 1965 as an independent governmental institution, is one agency for the promotion of research in the social sciences. It has nine committees and one educational research board. The Council is financed entirely by the government and 40 per cent of its budget is devoted to research grants (1). Although in monetary terms the SSRC contributes in only a small way to educational R & D the post-graduate grants which " awards are one of the (rare) means for young scientists to continue research after receiving their degrees.

In Denmark, there are three councils which are concerned with educational R & D. Mention has already been made of the Danish Research Board of the Public School which is not a national research council in the strictest sense. The most important of these councils, in the field of education, is the Danish Humanities Research Council, created in 1968. The third is the Social Science Research Council (1969).

In the Norwegian Research Council for Sciences and the Humanities, established in 1949, there is a branch for social science, created in 1969, whose duties are to advise the government and to co-ordinate and finance research. The totality of the funds of this council is received from the government.

Sweden has a separate Social Science Research Council with one group for psychology and educational psychology which is responsible for the financing of basic research. This section is composed of seven members, out of which three are nominated by the government, two are elected by the professors of psychology of Swedish universities and two by the professors of educational psychology. These groups are composed mainly of professors at the five Swedish universities (2).

In 1970 the Academy of Finland and the different research councils were integrated. The Academy of Finland in its present form comprises the Central Board of Research Councils and six individual research councils, of which two - the Research Council for the Humanities and the Research Council for the Social Sciences - provide some financing for educational R & D. The Academy is subordinated to the Ministry of Education and its operations are financed from the State budget. The task of each research council is the overall planning of science policy in its own particular field. The highest policy-making body in the field of research, however, is the Science Policy Council, an inter-ministerial body covering all scientific work in Finland.

Some mention has already been made of special bodies in different domains such as the United Kingdom National Council of Educational Technology (NCET) and the Schools Council for Curriculum and Examination, and the planned German Institute for Curriculum Development. In the Netherlands, there is also one commission for curriculum development. Similar boards and committees are to be found in other countries.

C. CONCLUDING REMARKS

At present, three different models for determining educational R & D policy may be identified.

a) The first consists in the least possible planning : research establishments determine their own programmes in accordance with the tradition of academic freedom. However, it might be said

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1) Cf. "National Research Councils : United Kingdom : SSRC", in Social Science Information, October 1969.

2) "National Research Councils, Sweden : the CSSR", in Social Science Information, April 1969.

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that this type of arrangement belongs to a past historical epoch, even if the influence remains strong, particularly in a large number of the continental countries. But even in these countries the need for some co-ordination to match national priorities has been recognised though it is not yet clear what degree of impact this has or will have on university research.

b) In strong contrast to the still predominantly laissez-faire policy of the Mediterranean countries is the marked centralisation which is seen in Sweden and Finland. Here the national authorities determine or approve overall programmes for R & D though the form and content of the programmes are derived from a continuing and intimate dialogue between government and a wide range of other participants, including university researchers and teachers.

c) Not all countries, however, which have moved well beyond Stage I in their conception and development of R & D have adopted these centralised mechanisms but appear to rely instead on a more subtle interplay of individual policies. This is the case for Norway, for the United Kingdom and in part for the Netherlands.

The United Kingdom in particular has evolved arrangements neither over-centralised nor decentralised, in which R & D policy is defined by a number of national agencies, governmental and independent, general and specialised ; their governing boards are composed of representatives of the central administration and the R & D community, teachers and local educational authorities. Some of these agencies are, themselves, research centres and have financing responsibilities.

i) "National" non-specialised agencies. They are governmental or independent. Governmental agencies include the Planning Branch of the Department of Education and Science and the University Grants Committee for the whole United Kingdom, the Advisory Council for Education in the Ministry of Education of Northern Ireland, and three bodies within the Scottish Education Department which propose priorities on research activities , one Research Branch (managing the Department's programme for R & D grants), a Departmental Committee on Educational Research and a Planning Committee (R & D). Independent agencies include the NFER for England and Wales, the SCRE (Scottish Council for Research in Education) and the NICER (Northern Ireland Council for Educational Research). All these institutions are at the same time research centres (though research activities in the SCRE and NICER are very modest compared with the NFER) (1). In these agencies local authorities, the government, teacher organisations and the universities are always represented (2). The SCRE and the NICER have as their basic mandate the promotion of R & D "extra-muros" whereas the NFER does its own research, being "committed to the investigation of educational problems which are

1) Their research staff in 1970 was as follows : 53 for the NFER, 5 for the SCRE and 3 for the NICER, all full-time. See Council of Europe, Educational Research : European Survey 1970, Vol. I, 1971.

2) The Scottish Council - created in 1928 (educational R & D developed in Scotland earlier than in the rest of the United Kingdom) - provides a good example of the latitude of interests considered. Its membership is no less than 57 and includes representatives of the Association of County Councils, Associations of Counties, of Cities, the Educational Institute of Scotland, the Association of Directors of Education, the Universities, the Colleges of Education, the British Psychological Society, the Society of Medical Officers of Health, the General Teaching Council for Scotland, the British Sociological Society, the Scottish Certificate of Education Examination Board representatives of teacher organisations and of the Scottish Education Department.

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of national importance or require particularly urgent expert study" (1). The three centres are financed by their members.

ii) Apart from these, there are more specialised policy and financing agencies. They are subsidised either by the central government (such as the SSRC, the most important sponsoring institution for basic research in the social sciences, and the National Council of Educational Technology, NCET) or jointly by the DES and local authorities (the Schools Council). Twelve of the 14 members of the governing board of the SSRC are university teachers (although this is not a statutory rule) ; the governing board of the NCET is composed of members appointed to represent a broad spread of interests - academic, industry, government - whereas the Schools Council, while providing representation for all education interests, including universities, has a majority of serving teachers on its policy committees (2).

1) Answer of the NFER to the Council of Europe Questionnaire, op. cit., p. 20.

2) The governing council of the Schools Councils contains 75 members appointed by 33 member interests, which include teacher and the local authority associations, examination boards, both sides of industry, the universities, religious education bodies, and the Secretary of State for Education and Science.

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Chapter V

CURRENT STRATEGIES FOR EDUCATIONAL RESEARCH

A. R & D AND EDUCATIONAL CHANGE

Educational innovations are usually more a response to general forces in society than to development in the educational sciences. Such forces include social and political programmes which give rise to new educational goals, new demands for change in educational style and content, new conceptions of teaching, etc. Education is so deeply rooted in the value system of a society that science cannot serve as a singular social force to change these values, but it can supply important means to implement them.

Scientific ideas may contribute greatly - or very little - to these social forces ; on the other hand, innovation may in turn stimulate much, or almost no, scientific activity. Between the two extremes there are, of course, many variations.

OECD Member countries might be classified into three groups with respect to the institutional relationship between research and educational change.

In most of the Mediterranean countries, special agencies inside ministries formally contribute to educational reform. However, these units deal mostly with administrative planning to implement projected reforms and do not appear to link educational policy or planning with R & D findings from outside government circles. In Spain, one comprehensive policy-oriented R & D centre was recently created but is not yet fully operative.

In the important reforms of secondary and primary education which took place in these countries during the 'sixties, national research played a very minor role - with, as stated above, the exception of Yugoslavia.

Italy, Switzerland, Belgium and Austria are countries where formal links exist between research institutes outside ministries, the administration and educators. It has however to be said that the level of research contribution to educational change remains low ; and that this applies to the different kinds of R & D centres, schools of education, dissemination agencies, etc.

Although the possibilities for R & D research to have a practical importance depend, in the final analysis, on its integration into a coherent educational policy, insufficient funding remains a major obstacle. To give an example, research and innovation in the Catholic sector of Belgium education are co-ordinated by a directorate which developed a scheme comprising teachers and researchers (of Louvain University). It is on the demand of primary and secondary teachers that university researchers undertake definite projects. But the significance of these projects might be sharply limited by the very small budget of the directorate (10 million Belgian francs for 1969).

Some of these countries are making singificant advances, namely Switzerland, where two central organs have been committed for the coming years to elaborate a research strategy for the whole of the country and for the French-speaking part in particular, and where a Department of Sciences and Education is being

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created in the future Aarau University, and Austria where the project of creating a University of Education at Klagenfurt, devoted to R & D and to the promotion of innovation, was approved in 1970 and is now beginning to operate.

All these countries are characterised by a reasonable amount of national R & D - part of which is of high quality - that might be tried out in practice, and by the actual demand for research on the part of teachers.

In most of the remaining OECD European Member countries, closer relations exist between research and innovation, especially in such fields as teaching methods, educational structures, curricula, educational technology. Though major innovations in educational structures - introduction of the comprehensive school, extension of compulsory schooling, creation of "orientation cycles", implementation of educational technology, changes in examination procedures - have all been inspired by social, economic and political factors rather than by research, R & D is playing a definite role in the implementation of political decisions.

B. R & D AND POLICY

One of the resolutions of the Sixth Conference of European Ministers of Education invites governments "to pool all relevant information on experiments and innovations in nursery and primary education in their countries and communicate it to the interested international organisations" which are viewed as major dissemination bodies of research. This document underlines the general need of a knowledge pool in educational matters ; it seems to assume the availability of "relevant" information on early childhood education in sufficient amount to be applied in the schools.

However, there is the problem of making choices among the wide-ranging fields of science, relevant to education. Much of science and its methodology appears as a response to social fads, popular styles and social bias which also become the sources of serious misinterpretations of science. In these events, the applied use of scientific findings for education is often far from scientific. This, for example , is reflected in such a comment as that of Lee S. Shulman :

> "... the study of infra-human species and their behaviour came to dominate psychology ... It should be no surprise that the history of behavioural science research in education is not glorious. The differences between the human learning laboratory and the classroom are far greater. Researchers have been all too quick to generalise even from the latter setting to classroom behaviour /and/ does it not seem presumptuous to expect that a learning theory based upon evidence from the T-maze, the pigeon's press-bar on the memory drum can effectively be used to guide the planning of that most complex of human endeavours, the typical classroom." (1)

When science as applied to education becomes a caricature, it leads to disillusionment with science in this field. In deciding the scopes and limits of the contribution of the various disciplines in the experimental development of education, what should be the role of the professional researchers ? While this role should not be exclusive, it can in reality be nothing less than strategic. This is not simply a question of methodologies, but rather it requires an examination of the values underlying scientific activity. In most countries, critical and supportive responsiveness to new trends and to novelty and concern for relevance to education

1) Lee S. Shulman, "Reconstruction of Educational Research", Review of Educational Research, Vol. 40, n°3, June 1970, pp. 373, 375-376.

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have not yet replaced half-traditionalistic, half-esoteric activity aimed at narrow professional and public prestige.

The development of this improvement of research activity for education requires first a solid institutional basis within each country involving leading scientists in the field of education and the usual autonomy characteristic of scientific enterprise.

For the contribution of this basic scientific investigation to be optimal, a number of conditions must be satisfied, in particular the following :

- A much higher interest in academic circles in the theoretical problems in the many disciplines related to education.
- An increased status for people engaged in such research, hence higher standards of recruitment, training and interdisciplinarity of outlook.
- Attainment of a "critical level" of research implying a considerable volume of funding and a higher quality and number of researchers.
- Access to the "field" - schools, etc. - for experiment and enquiry.
- Freedom to follow scientific "hunches".
- Constant and large involvement in the process of teacher training and re-training.
- Effective management of R & D centres.

Developments in Europe, as in America, have shown that this basic function, valuable as it is if properly used, is not enough. Stage I develops into Stage II, and for this to be effective some extra conditions have to be met :

- Large monetary resources, especially for "D" ; D is usually more expensive than "R".
- Management skills for a system complex. The definition of priorities and the establishment of organic links between researchers, administrators and practitioners are decisive.
- Possibility of viable careers in the R & D process. Also, the development of new careers (such as "linkers", i.e. change agents "intermediates" and consultants) is important.
- Procedures for flexibility and genuine, well-supported initiative throughout the R & D organisation. Too tight a management structure can foreclose initiative and spontaneity either on the academic or the developmental side. (1)

But within Stage II, there are two different ways in which the contribution of R & D can be effected, whether as a part of a functionally national bureaucracy with its scope and direction determined by central authority, or whether the role of the researcher shall be as described by C. Wright Mills :

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1) This list can be compared with the list established some time ago for the American scene by Sieber and Lazarsfeld. These recommendations are the following : filling the gap between educational research as a speciality and the general social and behavioural sciences ; strengthening the relation between the independent agencies and the universities ; improving the training programme of researchers ; improving the utilisation of R & D institutes ; and the establishment of field testing and demonstration centres. (S. D. Sieber and P. F. Lazarsfeld, The Organisation of Educational Research, 1966, pp. 61 et seq.)

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> "It is to remain independent, to do one's work, to select one's own problems, but to direct this work at kings as well as to 'pub.ics'. Such a conception prompts us to imagine social science as a sort of public intelligence apparatus, concerned with public issues and private troubles and with the structured trends of our time underlying them both - and to imagine individual social scientists as rational members of a self-controlled association, which we call the social sciences." (1)

This is near to what K. Eide calls "informative" criticism, where "the production and submission of knowledge is basically a critical function, aiming at changes in the premises for decisions, and the consequent actions" - as opposed to "prescriptive" criticism, "aiming at a power position permitting the prescription of decisions by others" (2).

It is towards this critical and informative function that contemporary efforts are being directed. A number of fundamental conditions are necessary if such a function is to be realised.

a) An appropriate institutional framework. K. Eide insists on the need for a re-definition of the power structures of the R & D apparatus and for granting to research centres an extended area of discretion in decision-making (3). For the policy and financing of research, some elements which would favour this redefinition have already been suggested in the preceding chapter. The fundamental idea underlying these elements is the creation of a sponsoring network founded on an overlapping of responsibilities rather than on their planned division - in such a way that the scientists are protected against any possible arbitrary use of power, preserving the possibility of addressing themselves to several sources for financing.

b) The upgrading of the researcher's status. The field of educational research suffers from a lack of influence and prestige in all countries, a fact which poses a major problem for the position of the researcher. There is at present little opportunity for upward mobility. Also, because of the low status and institutional weakness, there is a lack of horiz.ntal mobility between the field of educational research and other research fields. Some recent findings on the situation in Quebec might be applied to the European situation as well. Less than one per cent of the students in faculties of education work as research assistants. Research careers are not planned for even a small proportion of graduate students in education ; consequently, there are few graduates who occupy research posts. There is an unwillingness on the part of other academics to a.. .iate themselves too closely with professors of education, in a professional capacity, owing to the current low prestige of education professors. Teacher-training education and research often conflict (4).

Earlier, up to the period of World War II, the education of the top academics in the field of education reflected the pattern of what was held as required for competence in the tradition of classical education. Thus, neither the social or behavioural sciences nor their practical implications in the world of the school were featured in their preparation. Today when these modern human sciences have advanced in Europe, the field of education tends to continue to train its top academics in the same out-moded subject areas. Reference to the university curricula, both first and graduate degrees, in such countries as Italy and France specifically fits this description. In Italy, the law for the liberalisation of studies' plans (1969) has modified the situation and favoured social sciences in the B. Ed. curriculum. The new law on recruitment of teachers imposes the requirement of knowledge in social and educational sciences.

1) C. Wright Mills, The Sociological Imagination, Pelican Books, 1970, pp. 198-200.

2) K. Eide, Educational Research Policy, OECD/CERI, Paris, 1971.

3) Ibid.

4) See Institute of Research in Education, Department of Education, Quebec : Educational Research in Quebec, 1970, pp. 10 et seq.

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The basic-researcher's prestige seems to be at its lowest precisely in those countries where high academic prestige appears as a requisite for the effectiveness of R & D. The developmental-researcher's image is still lower : thus the best minds are attracted by traditional social science disciplines rather than by the educational sciences and, within education, by theoretical rather than developmental research.

c) A clear relationship between Research and Development. In many cases, scientific work relevant to education can be systematically tested in the field as a part of the scientific procedure itself, and "practical" developmental efforts will raise basic scientific problems. Basic research should in this way lead to developmental research, and development to evaluation research and, eventually, again to further basic research. The developmental function of research requires the freedom for R & D to develop totally new ideas in educational practice within the framework of the politically stated educational problems, to anticipate potential problems and to broaden the horizons of educational possibilities and goals. The evaluation function of development would, in turn, imply the permanent assessment and revision of educational situations. Also, the integration of developmental research and teaching would transform the teacher into a permanent evaluator and thereby constitute a source of active feedback for research.

d) An explicit critical relation of R & D to educational policy. A new and increased commitment to education implies a policy for the change of education, recognised to be necessary as part of the broader social and economic changes taking place in Member countries. Stated in generally applicable policy terms, educational change, to be effective, must both be based on, and result in, changes in the behaviour, in the attitudes and perceptions of the people daily involved in the educational process. The question then becomes one of how the R & D institutional set-up contributes to a reform movement which engages the major portion - that is, a critical proportion - of the educational public in its daily participation in the educational process.

In the last analysis, the policy question for educational research is likely to reside in the question : what is the educational policy itself which this research is meant to serve ? If the educational research seems flawed or confused or ineffectual, it might nevertheless be that it reflects the actual educational policy of the country. Research policy for education could be asked to go beyond this point. If in any country this general educational policy is not considered to be sufficiently forward-looking, then the question for educational research policy might very well be what role it can play to bring about a change in this policy.

e) A general political orientation favouring participation in change. Over any reasonable period of time, the major effort for a sustained movement must involve an increasing freedom of initiative from within the educational public, without which educational change cannot be of a sufficiently fundamental character for it to contribute effectively to larger social change.

It is in relation to the particular circumstances of each country that the significance of R & D, in each case, can finally be evaluated. It would therefore seem impossible to find institutionalised solutions suitable in themselves. For example, "packages" of educational activity produced by R & D can be authoritarian in some circumstances or "liberating" in others. "Packages" prepared and handed down by authority to teachers can be severely limiting if the teachers do not internalise new concepts but merely follow authority and continue the wooden forms of education with other devices. On the other hand, "packages" produced and distributed so as to allow teachers and students an increasing number of choices, including the choice not to use the "packages" at all but to break them up and form their own "packages", can be liberating and constructive and a positive element in purposeful change.

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